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SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

ACCESS:
ER FOR COMMON INFORMATION

Nos. 1 – 5
1970 – 1973

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ACCESS : NEWSLETTER FOR COMMON INFORMATION

PREPARED BY THE SAN FRANCISCO DEPARTMENT OF CITY PLANNING

NEWSLETTER NO. 1   OCTOBER 1970

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7. Questionnaire (to be completed and returned)

The Access Newsletter and How to Use It

This is the first issue of the Access Newsletter. It is being
published in the belief that it will promote the communication and
enable the coordination necessary to achieve an information system
that will be of benefit to all of the participants in the effort.

Putting an information system together requires cooperation and
coordination. While this can be accomplished through committee
meetings, experience shows that there is a lot of work which can
best be done by one person sitting down and sifting through the
material. Until that work is done, there is often not much to
present to a committee of the whole to act upon. The approach we
believe will be most helpful in the early stages of the project
is for each of the departmental representatives to meet with Pete
Groat to discuss the needs, resources, and capabilities of each
department. In order to transmit the information, we believe that
this newsletter may be the most efficient means. However, it will
only work to the extent it is used, and to be used it must be read.

Each issue of the newsletter will contain at least one article on
some important aspect of the information system. The articles will
serve two purposes: (1) they will transmit information: (2) they
should stimulate response. In this issue, for example, the main
feature is a description of the Geographic Base File, while a
second place is given the Land Use Survey. About a week after the
newsletter has been distributed, Pete Groat would like to arrange
a meeting with each of the representatives to discuss the contents
of the letter and his response to it, or to related issues. These
then, together with specific assignments (several are contained in
the current issue of the letter) will form the basis for progress.
We believe that this method will enable us to accomplish a lot of
tangible work and when it is necessary to convene the group, we
will have an agenda of topics that can be discussed and acted upon
given this background effort.

The Working Group

The following list includes the departments participating in the development of the information system and the names of their representatives.

Department	Representative
Assessor	Mr. Val King
Chief Administrative Officer	Mr. Gilbert Boreman
Controller-Systems and Data Processing	Mr. Thomas Gerughty
Economic Opportunities Council	Mr. Raymond Holland
Department of Finance and Records	Mr. Virgil Elliott
Fire Department	Chief Joseph P. Daley
Department of Public Health	Mr. Joseph Mignola
	Miss Mildred Holota
Housing Authority	Mr. Martin Eber
Human Rights Commission	Miss Edith Witt
Office of the Mayor	Mr. Revels Cayton
Public Library	Mr. John F. Anderson
Parking Authority	Mr. Arthur S. Becker
Police Department	Mr. Louis Feder
Port Commission	Mr. Harry Thiemann
Real Estate Department	Mr. Douglas Weinkauf
Recreation and Park Department	Mr. Wesley Miller
Unified School District	Mr. Philip Cali
	Mr. Harold Weeks
Department of Social Services	Mr. Masaya Kekebe
Public Utilities Commission	Mr. C. Dean Collins
Department of Public Works	
Building Inspection	Mr. Alfred Goldberg
Engineering	Mr. Thomas Beggs

As the principal liaison, all of the above will receive copies of the Access letter and copies of materials for review. Pete Groat will be in touch with you regarding specific issues and assignments. Through our close collaboration, much of the fundamental work necessary to clear the way may be accomplished in the minimum time. This list will serve as a directory of those people knowledgeable about their department's information needs and concerned about the sharing of information. The "Club" is not exclusive, and it is open to new membership from departments not yet contacted, or if the need indicates, more than one person from each department.

The Program and the Product

The product of the program is not to be a report which will lie on a shelf. The product is action towards achieving the goals stated in Achieving a Common Information System (enclosed) and modified during the coming work year.

By July, 1971, we would like to have a common Geographic
Base File for all departments to use as they need it.

By July, 1971, we would like to have settled upon those
items of information collected by various departments
which are of common interest and which may be shared.

By July, 1971, we would like to have a clear picture of
the capabilities of data processing systems, the manner
in which various departments can best use EDP services.

By July, 1971, we want to know how to share the information
we have, what information is needed to answer questions we
can't answer now, and who is best equipped to provide the
information and the answers.

The product of the program will be a set of concrete proposals upon
which action can be taken. The proposals will be for both the
immediate future and for the longer-range development of the system.
What we really need is a framework sufficiently comprehensive to
_____ _____'_ needs and permits communication between departments.
_____ ll be on those proposals which
_____ ting budget and organization.
_____ s roughly as follows:

_____ :ive to review the position
_____)ect to its information needs
_____ :d common information system
_____ :e and is included for that

_____ questionnaire returned at
_____ venience. It will help
_____ st to pursue to accomplish

_____ 'idually with each representative
_____)ncern.

_____ ial, the next newsletter will
_____ icipal directions needing
_____ will be identified.

_____ h communications and gain an
_____ needs and resources are, we
_____ concentrate on:

_____ : can do now;
_____ :e going to require more
_____ :ind of effort.

6. As soon as substantial work has been done and a presentation is needed or a general discussion required, a meeting of the group will be convened. An agenda will be formulated and a meeting time set. The points on the agenda should consist of issues that will be decided and upon which action would be taken.

7. At a point of diminishing returns, when it is apparent that more ambitious work cannot be undertaken without considerably greater resources, the committee will issue a report in which proposals and their feasibility will be discussed in concrete terms of money, time, and product.

8. Throughout this evolutionary process, every opportunity to improve the existing system will be considered and acted upon. There is no doubt that many circumstances not now anticipated could result in carrying the work forward. At this point, our main interest is in remaining sufficiently flexible that this may happen. We don't want to close our eyes to any opportunity, however remote it may seem.

9. The key to the entire program is communication. We must know what each other wants or has to offer. Only in this way can we achieve the goal of useful, commonly shared information.

A Geographic Base File for San Francisco

Almost daily, in some public office, someone asks "to what Census Tract (or Health District, Traffic Zone) does this address belong?" The answer is usually determined by checking in a manual containing street addresses with matching district codes -- if such a manual is available. Routine clerical operations like this often occupy a disproportionate share of the time of both clerks and professionals. Worse, there may be no record of such an address, and either the record goes uncoded or a frustrating search for the street is carried on with some other agency who "should" know.

Not daily but often enough, someone requires information about a district for which they may be responsible. The statistics, unhappily, are not necessarily kept on the district basis, but by individual addresses. The operation described above now must be done before any tabulation of information on the district level is possible. This usually means that if the information is needed quickly, for some non-routine project, it cannot be collected even though it exists. Instead, a best guess is substituted, and on the average, best guesses are not very reliable. Being right half of the time may not be good enough. If more time is available, the

information is laboriously collected and tabulated, often consuming 90 percent of the time available for research. The result: a mass of undigested numbers ending in a case of analytical indigestion, and the analysts are hardly better off than in the "best guess" situation. The embarrassment of riches is often even more so, since a little more intensive review of the figures often shows that the first conclusions, prepared for the deadline, are only partially right, or even dead wrong.

In a third, not uncommon situation, a comparison between two sets of data is desired. While the original data may be collected by address, the tabulations may be by two quite different geographical areas, say a school district and a public health service area. The boundaries are incompatible, and there is no time to return to the original information and tabulate it by the desired boundary. Again the "best guess" method is resorted to, and the results may well leave much to be desired.

If these situations sound painfully familiar, you will be extremely interested in several of the most important by-products of the 1970 Census. They are the Address Coding Guide (ACG), the ADMATCH program, and the Dual Input Map Encoding program (DIME).

ACG. The Census of 1970 relied heavily on a mail-out, mail-back questionnaire for the urbanized areas of the country. Many of you may have received the questionnaire in the mail, completed it, and returned it without ever having been visited by the Census Enumerator. You may have noticed that the questionnaire was sent to your home address and was not sent to you personally. The addressing of the forms was a major project which would have been impossible without both the computer and the list of streets for each municipality known as the Address Coding Guide. The function of the ACG was to edit the commercial lists of addresses and eliminate from them both streets and addresses which did not exist. How was ACG prepared? Early in 1969, San Francisco received from the Bureau of the Census a print-out which contained a complete listing of streets, by individual block face (side of the street). For each block face of each street, the possible low to high number range of addresses were given, e.g., 1200-1298 Market, 1201-1299 Market. The task of the local agency was then to review the guide and to correct any errors in the listings. This required the equivalent of fifteen man-months of clerical work. When the work was done, it was returned to the Bureau of the Census who gave it to the local Post Office for a final field check. The resulting ACG was then used to screen the mailing. Two functions were then performed: (1) Addresses were screened to eliminate mistakes; (2) Appropriate codings (see next page) were assigned each form permitting rapid tabulation when the responses were collected.

The Address Coding Guide now represents a reasonably complete listing of all San Francisco's streets (even those dedicated but

not developed) and quite probably the only such listing. It is
the only listing which has had the benefit of two independent checks,
and the only listing which is available on magnetic tape. As such,
it can, with appropriate programming, be readily altered to reflect
changes or correct errors. It is the only listing of streets which
contains, on a block by block basis, the following information:

1. The potential number range of each block from low
    to high

2. The Zip coding for each block face

3. The 1970 Census Tract and Census Block Number

4. A unique serial number for each block face which
    permits rapid access to 1970 Census information
    (more on this subject later)

5. The Congressional District

Further, there is ample room on the ACG to contain other district
codings, if they are desired. Finally, it is now in the possession
of the City's EDP unit and is available to all who want to make
use of it. One of the more important applications of ACG may be
to code automatically the Census Tract to those forms requiring
such reporting. This might well eliminate, or substantially reduce,
the amount of time required to cope with the first situation.

ADMATCH. If you are given a set of individual addresses and you
want to assign them to particular districts by making use of the
computer, a program will be required for the operation. Such a
program, ADMATCH, has been developed and may be used with the
Address Coding Guide. ADMATCH will soon be available for use in the
City's EDP Division. A special feature of the ADMATCH program is
its ability to accept a limited number of common spelling or street
classification errors and match with the correct file. ADMATCH is
not limited to the ACG file, and a special reference file con-
taining all of the various City district codes can be developed for
use with it. ADMATCH would be the computer clerk who would take
care of the initial steps in the second situation above.

DIME. Mapping data in the pre-computer days was a laborious job.
Especially difficult was the process of matching data to differing
boundaries, since it had to be reclassified for each new district.
Today, using the computer, it is possible to obtain not only
summaries of data by the area desired, but maps as well. However,
map preparation requires a system of coordinates, grid or otherwise,
which serve as landmarks to orient the map. Customarily, grid or
Cartesian coordinates have been used for mapping small areas.
Unfortunately, the use of grid coordinates requires a highly
accurate and exhaustive assignment of coordinates to each point on

the surface of the map. This has prevented the development of such a system for intersection mapping at the City level.

Mapping for analytical purposes does not necessarily require the accuracy of a geodetic survey. A system of coordinates may be developed which, while not precise in the mathematical sense of the Cartesian coordinate, nonetheless, is sufficient for most mapping purposes in which data are to be studied spatially. Such a system is DIME. In DIME, a unique number is assigned to every street intersection and/or topographic feature in the City which are "nodes." The number is added to the ACG file, and each block-face, therefore, has a beginning and ending node number. A system of checking permits the computer to determine whether or not a mapping is accurate for any particular block or set of nodes. In addition, having assigned the nodes, it is then possible to "digitize" them on a standard metropolitan map to produce co-ordinates. Further, the DIME node numbers can be measured from the standard geodetic base, if that is desired.

Once established, DIME is easily maintained and is adaptable for many purposes. An example is the preparation of maps by computer and another the reconciliation of different areas whose boundaries are not co-terminous. Maps formerly impossible to procure can now be made available through the use of DIME.

The Association of Bay Area Governments is seeking funds now for the implementation of the DIME system. A consultant, experienced in the preparation of the ACG and DIME systems, will employ a trained staff to prepare the DIME file for each city or urbanized portion of the County area. If San Francisco can provide $4,000 in non-cash services for the project, there is every prospect that the DIME file will be ready for use by mid-1971. A secondary, but important, benefit of the development of the DIME file is a check on the accuracy of the ACG.

The New Land Use Survey

A periodic assignment of the Department of City Planning is the preparation of a survey of the land uses found on each of the approximately 168,000 parcels of land in San Francisco. In the past, the survey has been conducted at irregular intervals which depend upon the ability to survey, map, and report the results. The last survey required three years, from 1961 to 1964, to undertake and report. All of the survey recording was done on block maps which then were translated into color codings representing about fifteen categories of land use. A report, tabulated by draftsmen on adding machines, was prepared. It required about a year and a half to complete.

The infrequency of the survey and the laborious tabulations have been a major drawback in making the land use survey as effective

a device as it could be. By the time one survey is finished and reported, certain areas of the City may well have changed and the nature of the changes will not be recorded until another considerable length of time has elapsed. Another major obstacle has been the very general nature of the categories used, especially those for industry. In the older survey only three categories -- light, medium, and heavy -- are used to describe industrial land use. This provides, regrettably, little information for the analyst seeking specific information about the relationship between one industry and another, or seeking the locations of similar industries throughout the City.

In designing the survey which commenced about a year and a half ago, the Department of City Planning made several major decisions:

1. The survey should be executed in a format compatible with electronic data processing;

2. The land use file should be merged with those portions of the Assessor's secured roll publicly available and to this data, not only land use, but the acreage of each parcel and its current zoning should be added;

3. A finer classification of land uses by their specific function would be used, in this case the generally used Standard Industrial Classification adopted by the Federal Bureau of the Budget and widely used by State and Federal statistical reporting agencies;

4. The file, once generated for computer usage, should be a part of the information system.

The first three decisions have been implemented. For the past year and a half, Department staff have been preparing the survey using several lists of land uses, including the Assessor's, as well as field checks, where necessary. The new file containes, for each parcel, its land use by specific function, its acreage to ten thousandths (permitting a conversion to square feet with the possibility of an error of two square feet in 2,000, its current zoning, and its 1970 Census Tract assignment.

Eighty-four percent of the City has been surveyed up to this point. While on many parcels in the City, a single land use is found, on others which contain, for example, a commercial office building, a great number of different uses may exist. The file created by the Department contains an assignment of the principal land use (the largest consumer of space) and of the secondary uses. Each is specifically identified. For instance in what formerly was the general classification, "light industrial" both plumbing contractors and commercial greenhouses would have been included,

and there would have been no opportunity to differentiate the two quite different businesses. In the rew classification, the former would be coded 1711, the latter 0192. Retrieval and correlation of specific functions are possible because of this identification.

As a practical example, recently the Department of Public Works was interested in identifying the location of water-using indus- tries in the City. If the land use survey were committed to tape, it would be possible to identify each such industry by number, write a program calling for a print-out of those specific numbers by location (either by Assissor's Block and Lot or by address) and in addition giving the square footage or acreage of each lot and other descriptive information. These, then, could be analyzed to provide insights into patterns of water sage if Water Department records are available to correlate with this output. The amount of time required to program and run would be in the range of weeks; the time required to survey this manually would require months.

Where does the Land Use Survey stand now? The basic clerical work of reviewing each lot for its use(s) assigning appropriate S.I.C. numbers, computing the lot area, adding the zoning and 1970 Census Tract is complete for 84 percent of the City. The programs to generate a magnetic tape using the Optical Scanning system have been written, tested, and are operable. Tape generation is now possible. But it is still a long way off unless:

1. The Department can find clerical assistance to type the Optical Scan Input Sheets (we have found that a careful typist using an unmodified IBM Selectric machine with the special code ball can prepare completely acceptable input) for the first stage of tape generation.

2. That there is sufficient interdepartmental interest in this project to help us find an estimated $12,268 neces- sary to complete the programming and generate the tapes.

These two are relatively small amounts of effort and money com- pared with the amount already invested by the Department in the survey. We believe there may be payoffs from this material that have not been considered. If you can think of a way to help us generate this valuable file, please contact Pete Groat on Extension 4306.

Enclosure: "Achieving a Common Information System" and Its Use

The enclosed report is an abridged version of the original which was presented to the Planning Commission and adopted as Depart- mental policy in February, 1969. It has been forwarded to the Planning and Development Committee of the Board of Supervisors for their consideration. This project is a direct outgrowth of the

Commission's adoption of the report as an approach to a City information system.

The report was based on a study of the information needs and resources of a number of City departments. It is a <u>working</u> document. It consists of two parts: the body of the report and a set of tables from the original appendix. Please review the report which contains the description of the approach and the goals of the system. Any suggestions which you have on the approach will be helpful. Next, and even more important, examine the table taken from the original appendix. This table was based on a survey of the departments included and contain a list of informational items collected, used, and/or required by each of the departments. To make the most effective use of the table, please review it carefully keeping the following points in mind:

1. Is the listing currently accurate for your department?
    a. Please add or delete items accordingly

2. Ask yourself what you use the information for.
    a. Is it required for legal purposes?
    b. Is it required for administrative purposes?
    c. Is it helpful for evaluation or planning?
    d. Does it fall into the "nice to have, but I don't really know why" category?

3. Is it standardly defined so that you know that everyone using it or collecting it is talking about the same thing? (For example: An industry classified by the Standard Industrial Classification system is a standard definition, just as is a brake horse-power rating or the amperage of a household appliance. These are well agreed upon definitions and are always used in the defined sense. However, the definition of a "dwelling unit" is anything but standard. It may be differently defined by various agencies within the same community. One of the principal difficulties in sharing information is being sure we are talking about the same thing. A major part of our task will be to identify those terms which are in need of standardization and then do it.)

ACCESS : NEWSLETTER FOR COMMON INFORMATION

PREPARED BY THE SAN FRANCISCO DEPARTMENT OF CITY PLANNING

NEWSLETTER NO. 2   DECEMBER 1970

Contents

Scheduling of Interviews

The interviews with participants mentioned in ACCESS 1 have not
been scheduled. The desire to wait for questionnaire response
in order to make the interviews more meaningful, the appearance
of the 1970 Census data (described below) and the refinement of
the approach to information documentation (also described below)
combine to make the later scheduling of interviews more useful.
Interviews will begin following the Holidays.

Progress Report: Geographic Base File

The geographic base file, composed of ACG, ADMATCH, and DIME,
is in process. Editing of the Address Coding Guide will be a
continuing process, supplemented by activity in the DIME project.
The ADMATCH/OS program has been obtained from The Southern
California Regional Information System on an experimental basis
and the Systems and Data Processing Division is testing its
capabilities. DIME was formally launched the week of Thanksgiving
by Public Data Services, the consultant to the Association of Bay
Area Governments. Because the Airport Commission generously con-
tributed space to the project, San Francisco will probably be one
of the first counties to be encoded, according to plans drawn up
by Mr. Samuel Halstead, the principal of the consulting firm.
A valuable secondary service of the DIME project is a field
check on the accuracy of the Address Coding Guide.

The 1970 Census Data - Getting and Using It

The results of the Federal Census of 1970 will be available,
beginning in early 1971. The information will be available on
magnetic tapes as well as in the customary printed reports. The
tapes, in six sets, will be for general public use.

For those of you who have made use of the Census in the past, its value as a source of information about people and housing is well known. It you haven't used the Census materials before, you will want to read the attachments to the newsletter to determine the usefulness of the information contained. (See Exhibit 1.)

There are many uses for Census information. A few examples are:

> Ethnic distributions for Fair Housing
>   and Employment Practices studies;
> Family composition and income for
>   marketing analysis;
> Housing market analysis;
> Public facility planning;
> Health and welfare programs;
> Origin and destination studies;
> Neighborhood trends.

In fact, the advent of the computer tape containing Census information may present an embarrassment of riches. In some cases, notably in the Fourth Count which contains both the 100 percent data and the 5 percent and 15 percent sample data, about ten times as much information is contained in the tape as is available in the printed reports.

The issue of interest to ACCESS readers and information system participants is how to obtain the results of the Census and how to use them. Simplest in terms of acquisition are the printed reports. They are inexpensive, contain considerable information, and are easy to handle and to distribute. However, for any effort beyond simple table look-ups, the amount of effort required to transcribe the information in the printed report into machine-readable media, or even to use in conjunction with the desk calculating equipment rapidly becomes formidable. Thus, the printed report may limit the ability of an investigator to very superficial examination of problems. The table formats of the printed reports may not be suitable to the problem being examined, another limiting factor. Finally, as noted above, printed reports do not contain the amount of information which is stored on the magnetic tapes available for this Census.

But computer tapes are not magical, either. They require machines to read them, programmers to tell the machines what to do, and good research design to tell the programmer what to program. So for prospective users of the Census, perhaps the first task is to ask, "What am I going to use the Census for?" Reference to the attachments shows the items covered in the Census and the areas. If relatively simple information, following the format of the printed reports is desired, these will probably satisfy the user's need. However, more elaborate needs can only be satisfied by the use of the magnetic summary tapes, and it is at that point that the prospective users need to give careful consideration to their requirements.

Exhibit 1. SUBJECT ITEMS INCLUDED IN THE 1970 CENSUS

COMPLETE COUNT DATA ITEMS
    -Included in each Count, 1st thru 6th
    -Shown for all census areas including city blocks

	Population Items	Housing Items
100 percent...	Relationship to head of household	Number of units at this address
	Color or race	Telephone
	Age	Private entrance to living quarters
	Sex	Complete kitchen facilities
	Marital status	Rooms
		Water supply
		Flush toilet
		Bathtub or shower
		Basement
		Tenure
		Commercial establishment on property
		Value
		Contract rent
		Vacancy status
		Months vacant

SAMPLE DATA ITEMS
    -Included on 4th, 5th and 6th Counts only
    -Shown for census tracts, MCDs and larger census areas

	Population Items	Housing Items
20 percent...	State or country of birth	Components of gross rent
	Years of school completed	Heating equipment
	Number of children ever born	Year structure built
	Employment status	Number of units in structure and whether a trailer
	Hours worked last week	Farm residence
	Weeks worked in 1969	
	Last year in which worked	
	Occupation, industry, and class of worker	
	Activity 5 years ago	
	Income in 1969	
15 percent...	Country of birth of parents	Source of water
	Mother tongue	Sewage disposal
	Year moved into this house	Bathrooms
	Place of residence 5 years ago	Air conditioning
	School of college enrollment (public or private)	Automobiles
	Veteran status	
	Place of work	
	Means of transportation to work	

Exhibit 1
page 2

SAMPLE DATA ITEMS (continued)

Population Items	Housing Items
5 percent...Mexican or Spanish origin or descent	Stories, elevator in structure
Citizenship	Fuel--heating, cooking, water heating
Year of immigration	Bedrooms
When married	Clothes washing machine
Vocational training completed	Clothes dryer
	Dishwasher
Presence and duration of disability	Home food freezer
	Television
Occupation-industry 5 years ago	Radio
	Second home

PUBLIC USE SUMMARY COMPUTER TAPE FILES OF THE 1970 POPULATION AND HOUSING CENSUSES

(Planned as of April 1970) [1]

Name of file	Coverage	Smallest geographic area		Approximate number of data items for each geographic area	Tentative timing*	File subdivisions
		In file	Average population size			
1st Count	100%	Blockgroup/ED	820	400	Aug.-Dec. 1970	File A: BG or ED Summaries File B: State, County, MCD(CCD), MCD-Place, Place, Congressional District
2nd Count	100%	Tract/MCD(CCD)	Tract: 4,000 MCD's: 200- to one million+	3,500	Oct. 1970 to Apr. 1971	File A: Tract Summaries File B: State, County, MCD(CCD), Places, SMSA, and Component Areas
3rd Count	100%	Block	90	250	Jan.-July 1971	Not applicable
4th Count	20% 15% 5%	Tract/MCD(CCD)	Tract: 4,000 MCD's: 200- to one million+	13,000 (File A & B, and Places) 30,000 File C (except Places)	Jan.-Oct. 1971	File A: Tract Summaries File B: MCD(CCD) Summaries File C: State, County, Places, SMSA, and Component Areas
5th Count	20% 15% 5%	3- or 5-digit ZIP area	260,000 (3-digit areas) 10,000 (5-digit areas in SMSA's)	800	July 1971	File A: 3-digit ZIP area File B: 5-digit ZIP areas in SMSA's
6th Count	20% 15% 5%	Pop.-Cities of 100,000+ Hous.-Cities of 50,000+	500,000	Pop.-150,000 Hous.-110,000	Mar.-Oct. 1971	Pop.-Metr.Counties, Non-Metr.Counties 50,000+, Cities 100,000+, Central Cities, SMSA's. Hous.-State, Metr.Counties, Non-Metr.Counties 50,000+, Cities 50,000+, Central Cities, SMSA's.

[1] Additional summary tape files will be developed subsequently.

*As of December, 1970, the First Count tape delivery was already one month late.

For printed reports, each Department will want its own set.
You can probably obtain all of the printed report information
pertaining to San Francisco for less than twenty-five dollars.
However, the computer tapes require a larger budget.

First of all, the acquisition of a single set of tapes for the
City will probably be in the neighborhood of five hundred to
six hundred dollars. However, these tapes, and their duplicates
will serve all Departments. They will be stored with the Systems
and Data Processing Division and available to everyone who wishes
to use them and has a work order with S.D.P. Thus the cost of
acquiring the tapes will really be quite small if there are a
sufficient number of users. But, this is only a part, and the
least part of the expense. Research design, programming and
processing will also require money, and for some jobs, especially
those requiring elaborate search and correlation, the expense
and time will be large. This is not to discourage the prospective
user, but it is essential that a realistic perspective be devel-
oped now. It is important to realize, too, that the programmer
will have to be familiar with the documentation of the tapes in
order to do an effective job. We hope to develop this capability
on an in-house basis and as part of the services offered by the
information system.

The Department of City Planning has included funds in its budget
for acquisition of the Census tapes. It is hoped that this
budget item will receive the support of all those Departments
interested in obtaining and working with the data from the 1970
Census.

With this copy of the newsletter, you will find a post card. On
it, please indicate whether or not your Department will be inter-
ested in the use of Census Information, and the extent: printed
reports, or computer tapes.

The Land Use Survey: An Application

In the first ACCESS newsletter, the Land Use Survey project was
described. The field work for the Survey has now been completed
and following an editorial verification, the data sheets will be
ready for input preparation and subsequent computer operations
as noted in the last issue.

To make the project more concrete, the following dummy output,
prepared by hand, is included with this issue of the newsletter.
(See Exhibit 2.) The format is that of the Department's land
use report supplemented by a plate containing a simulated com-
puter output of the results. Bear in mind that this is but one
example of an application of the survey. It is not limited to
this format and may be used not only to produce area data, but
data by address or by kind of use as well. Furthermore, the
data could also be mapped by computer, using an appropriate

LAND USE CATEGORY	ACRES	% OF CENSUS TRACT NET ACREAGE	% OF CITY-WIDE CATEGORY TOTAL
RESIDENCE TOTAL	37.47	80.22%	.43%
Single Family Detached	3.97	8.49	.22
Single Family Row	11.01	23.57	.25
Two Family	12.68	27.15	1.14
Three or Four Family	6.87	14.71	1.14
Five to Nine Family	2.09	4.48	.67
Ten to Forty-nine Family	.85	1.82	.17
Fifty Family and Over			
Rooming and Boarding Houses			
Hotel			
Motel			
Public Housing			
COMMERCE TOTAL	4.22	9.05	.41
Retail Sales	3.71	7.95]	.43
Office	.31	.67]⁻	
Gas Station	.20	.43	.19
Parking Garage			
Used Car or Parking Lot			
Other Open Air Commerce			
INDUSTRY TOTAL	.27	.57	.05
Structural Light	.27	.57	.05
Structural Intermediate			
Structural Heavy			
Open Air Light			
Open Air Intermediate			
Open Air Heavy			
UTILITY TOTAL	.05	.11	.06
Truck or Bus Terminal			
Railroad Tracks or Terminal			
Other Utility	.05	.11	.06
INSTITUTION TOTAL	1.26	2.70	.37
Private or Parochial School	.52	1.11	.36
Rest Home			
Hospital			
Church	.67	1.43	.56
Other	.07	.16	.10
PUBLIC TOTAL	2.92	6.25	.04
Federal	.09	.19	
State			
City	2.83	6.06	.04
International			
Redevelopment Agency			
Rapid Transit			
PRIVATE RECREATION TOTAL	.04	.10	.01
VACANT TOTAL	.47	1.00	.03
Open Vacant	.47	1.00	.03
Tidelands			
Beach			
Open Water			
NET ACREAGE OF CENSUS TRACT	46.70	100.0	* .21

* % of City-wide Category Total is an approximation based on 1961-63
  City-wide Land Use Totals. These numbers for demonstration purposes
  only.

Exhibit 2
page 2

RESIDENTIAL UNIT COUNT BY RESIDENCE TYPE

RESIDENCE TYPE	NUMBER OF STRUCTURES	NUMBER OF UNITS
One Family Detached	56	56
One Family Row	199	199
Two Family	219	438
Three or Four Family	106	357
Five to Nine Family	33	202
Ten to Forty-nine Family	8	116
TOTAL	621	1368

ACREAGE OF ZONING CLASSIFICATION

R-2	12.12 Acres
R-3	21.49 Acres
R-4	7.27 Acres
C-2	3.91 Acres
P	1.92 Acres

ZONING CLASSIFICATION AND LAND USE COMPARISON

		GROUND FLOOR USE		
ZONE	TOTAL ACRES	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
R	40.88	37.01	1.08	.04
C	3.91	.46	3.14	.23
M	none	none	none	none

ACREAGE OF VACANT LAND BY ZONE

ZONE	OPEN VACANT	TIDELANDS
R-2	.15	0
R-3	.29	0
R-4	.03	0
TOTAL	.47 Ac.	0

MEAN AGE OF DWELLING UNITS IS 54 YEARS.

Exhibit 2
page 3

CENSUS TRACT 205
LIST OF S.I.C. CATEGORIES IN THIS CENSUS TRACT

NUMBER OF ESTABLISH- MENTS	S.I.C. #	ESTABLISHMENT CATEGORY
1	1711	Plumbing, Heating (except Electric), and Air Conditioning Contractors
1	2741	Miscellaneous Publishing
1	4939	Combination Gas and Electric Systems, Not Elsewhere Classified
1	5087	Equipment and Supplies for Service Establishments (Sales Office)
1	5096	Wholesale Distribution of Paper and its Products (Sales Office)
1	5251	Hardware Stores
1	5321	Mail Order Houses
14	5411	Grocery Stores
1	5421	Meat and Fish Markets
1	5462	Retail Bakeries - Baking and Selling
1	5463	Retail Bakeries - Selling Only
1	5541	Gasoline Service Stations
2	5621	Women's Ready-to-Wear Stores
1	5631	Women's Accessory and Specialty Stores
1	5651	Family Clothing Stores
1	5661	Shoe Stores
1	5719	Miscellaneous Home Furnishing Stores
1	5732	Radio and Television Stores
2	5733	Music Stores
6	5812	Eating Places
7	5813	Drinking Places (Alcoholic Beverages)
3	5912	Drug Stores and Proprietary Stores
2	5921	Liquor Stores
3	5932	Antique Stores
1	5992	Florists
1	5995	Hobby, Toy, and Game Shops
1	5997	Gift, Novelty, and Souvenir Shops
2	5999	Miscellaneous Retail Stores, Not Elsewhere Classified
1	6000	Banks, and Savings and Loan Companies
4	6611	Combinations of Real Estate, Insurance, Loans, Law Offices
1	7211	Power Laundries, Family and Commercial
2	7215	Coin-operated Laundries and Dry Cleaning
2	7221	Photographic Studios, Including Commercial Photography
4	7231	Beauty Shops
4	7241	Barber Shops
5	7271	Garment Pressing, Alteration, and Repair
1	7299	Miscellaneous Personal Services
1	7342	Disinfecting and Exterminating Services
1	7349	Miscellaneous Services to Dwellings and Other Buildings
1	7392	Business, Management, Administrative, and Consulting Services

Exhibit 7
Sheet 3

CENSUS TRACT 264
LIST OF S.I.C. CATEGORIES IN THIS CENSUS TRACT

STANDARD INDUSTRY	S.I.C.	NUMBER OF ESTABLISH-MENTS
Plumbing, Heating (except Electric) and Air Conditioning Contractors	1711	1
Newspapers: Publishing	2711	2
Combination and not Elsewhere Classified Systems	4939	1
Equipment and Supplies for Service Establishments (Sales Office)	5047	1
Wholesale Distribution of Paper and Its Products (Sales Office)	5098	1
Hardware Stores	5251	1
Paint, Glass Stores	5231	1
Grocery Stores	5411	11
Meat and Fish Markets	5421	1
Retail Bakeries - Baking and Selling	5462	1
Retail Bakeries - Selling Only	5463	1
Gasoline Service Stations	5541	1
Women's Ready-to-Wear Stores	5621	2
Women's Accessory and Specialty Stores	5631	1
Family Clothing Stores	5651	1
Shoe Stores	5661	1
Miscellaneous Home Furnishing Stores	5712	1
Radio and Television Stores	5732	1
Music Stores	5733	2
Eating Places	5812	6
Drinking Places (Alcoholic Beverages)	5813	7
Drug Stores and Proprietary Stores	5912	3
Liquor Stores	5921	2
Antique Stores	5932	1
Florists	5992	1
Hobby, Toy, and Game Shops	5995	1
Gift, Novelty, and Souvenir Shops	5997	1
Miscellaneous Retail Stores, not Elsewhere Classified	5999	2
Banks, and Savings and Loan Companies	6006	1
Combinations of Real Estate, Insurance, Loans, Law Offices	6411	4
Power Laundries, Family and Commercial	7211	1
Coin-operated Laundries and Dry Cleaning	7215	2
Photographic Studios, Including Commercial Photography	7221	2
Beauty Shops	7231	4
Barber Shops	7241	4
Garment Pressing, Alteration, and Repair	7251	1
Miscellaneous Personal Services	7299	1
Watch, Clock and Jewelry-repair Services	7332	1
Miscellaneous Services to Dwellings and Other Buildings	7349	1
Business, Management, Administrative and Consulting Services	7392	1

Exhibit 2
page 3a

LIST OF S.I.C. CATEGORIES (CONTINUED)

NUMBER OF ESTABLISH-MENTS	S.I.C. #	ESTABLISHMENT CATEGORY
1	7523	Parking Lots
2	7622	Radio and Television Repair Shops
1	7631	Watch, Clock, and Jewelry Repair
1	7929	Bands, Orchestras, Actors, and other Entertainers and Entertainment Groups
2	7949	Amusement and Recreation Services, Not Elsewhere Classified
7	8011	Offices of Physicians and Surgeons
5	8021	Offices of Dentists and Dental Surgeons
1	8031	Offices of Osteopathic Physicians
1	8041	Offices of Chiropractors
2	8099	Health and Allied Services, Not Elsewhere Classified
1	8111	Legal Services
2	8299	Schools and Educational Services, Not Elsewhere Classified
1	8671	Charitable Organizations
1	9112	Post Office

115

CENSUS TRACT 205

RESIDENTIAL STRUCTURE TYPE BY AGE
(EACH DOT ONE STRUCTURE)

Note: Simulated Computer Output

BUILDING HEIGHT PROFILE

Note: Simulated Computer Output
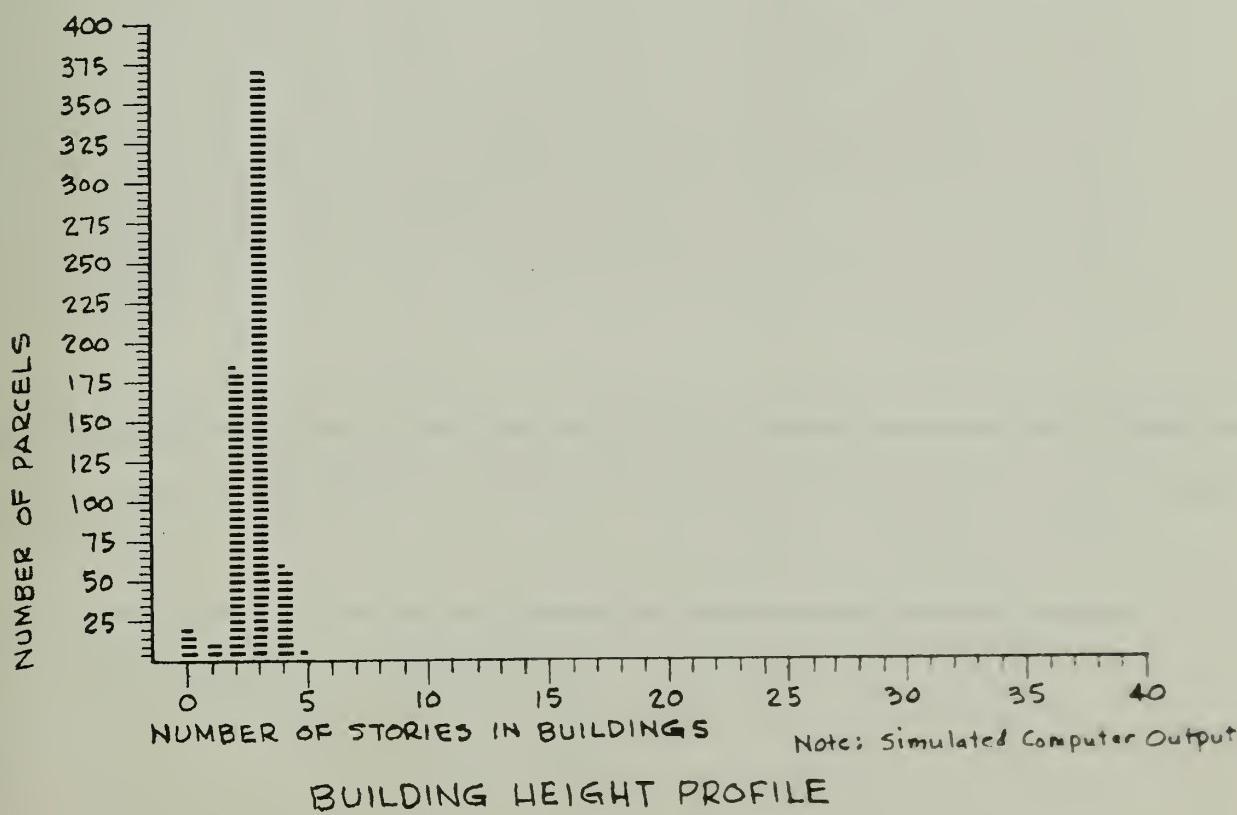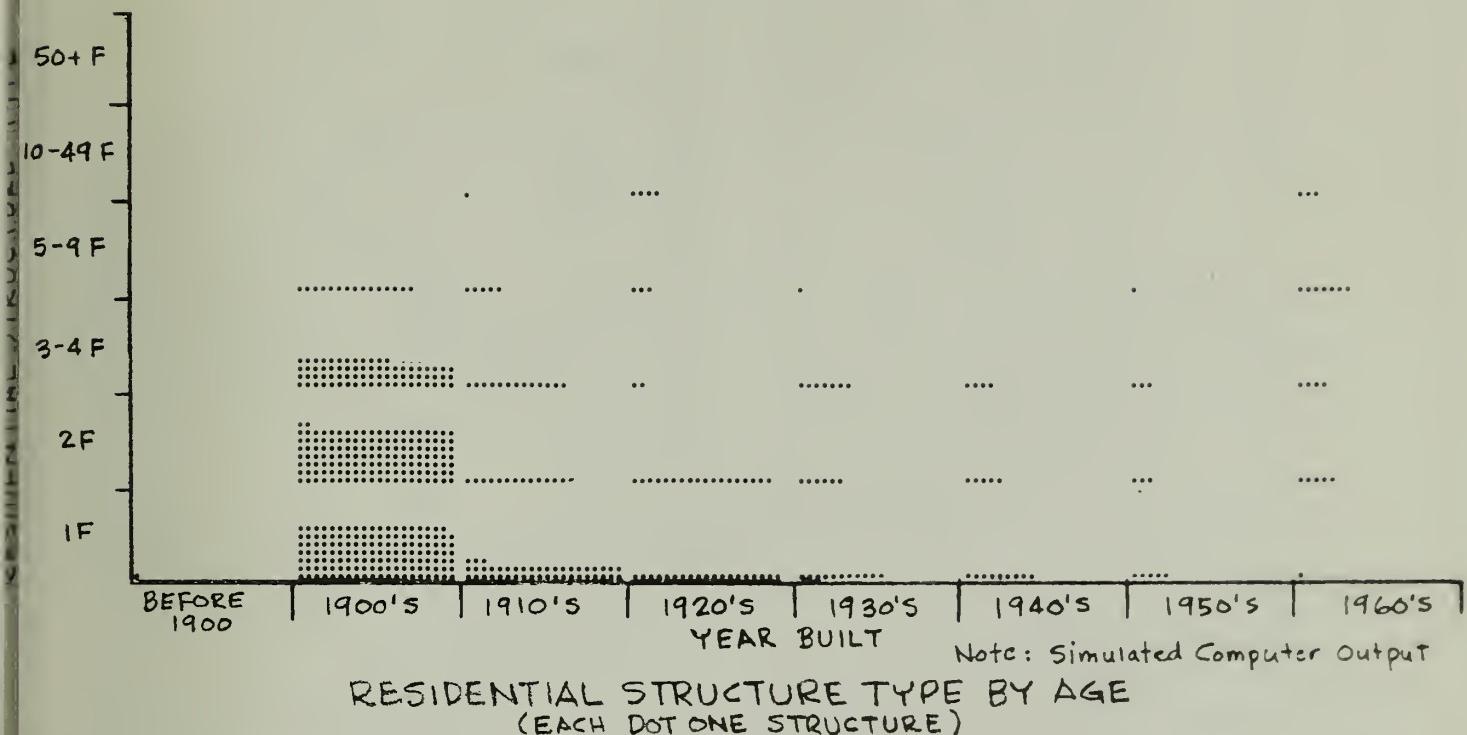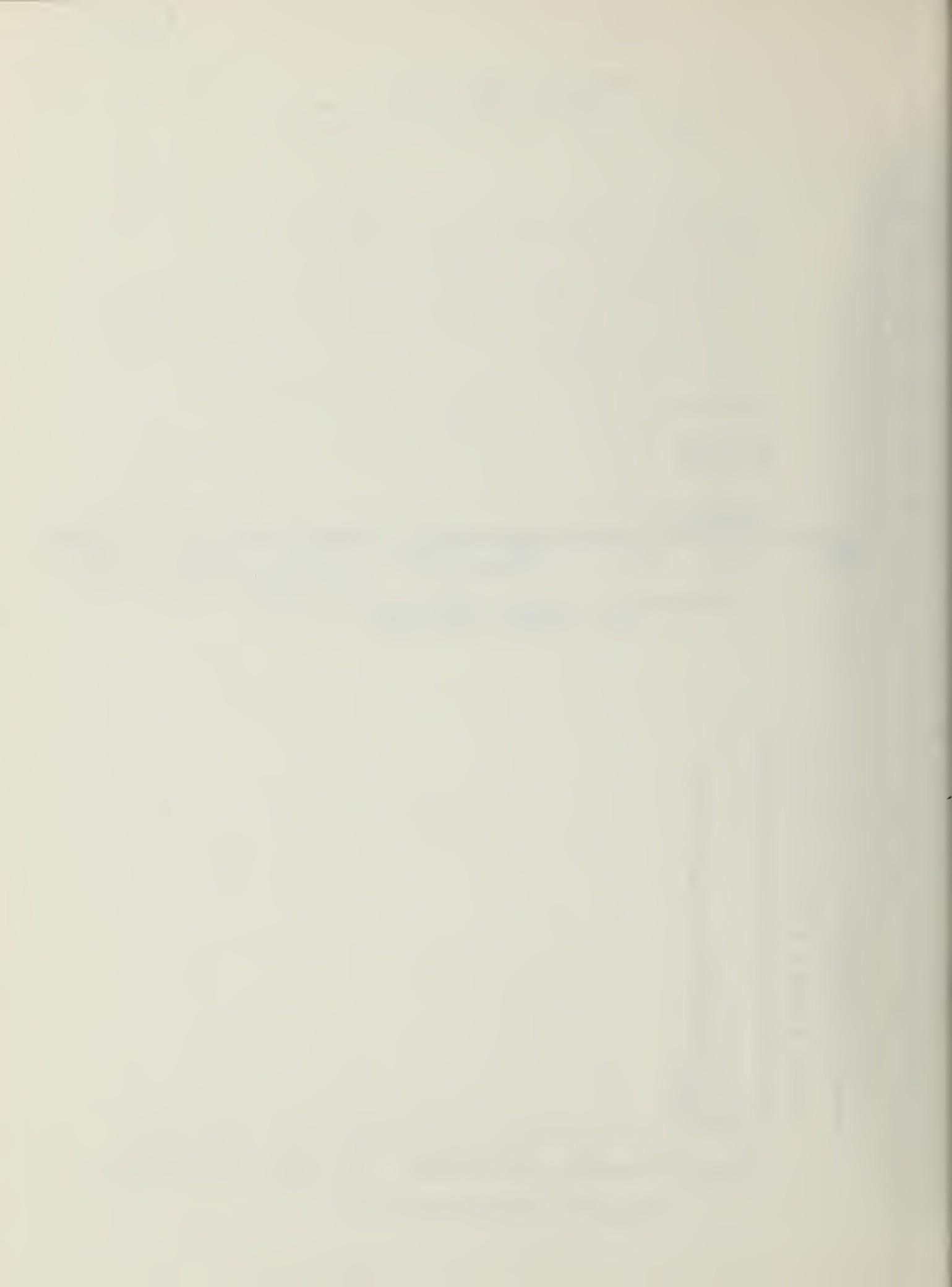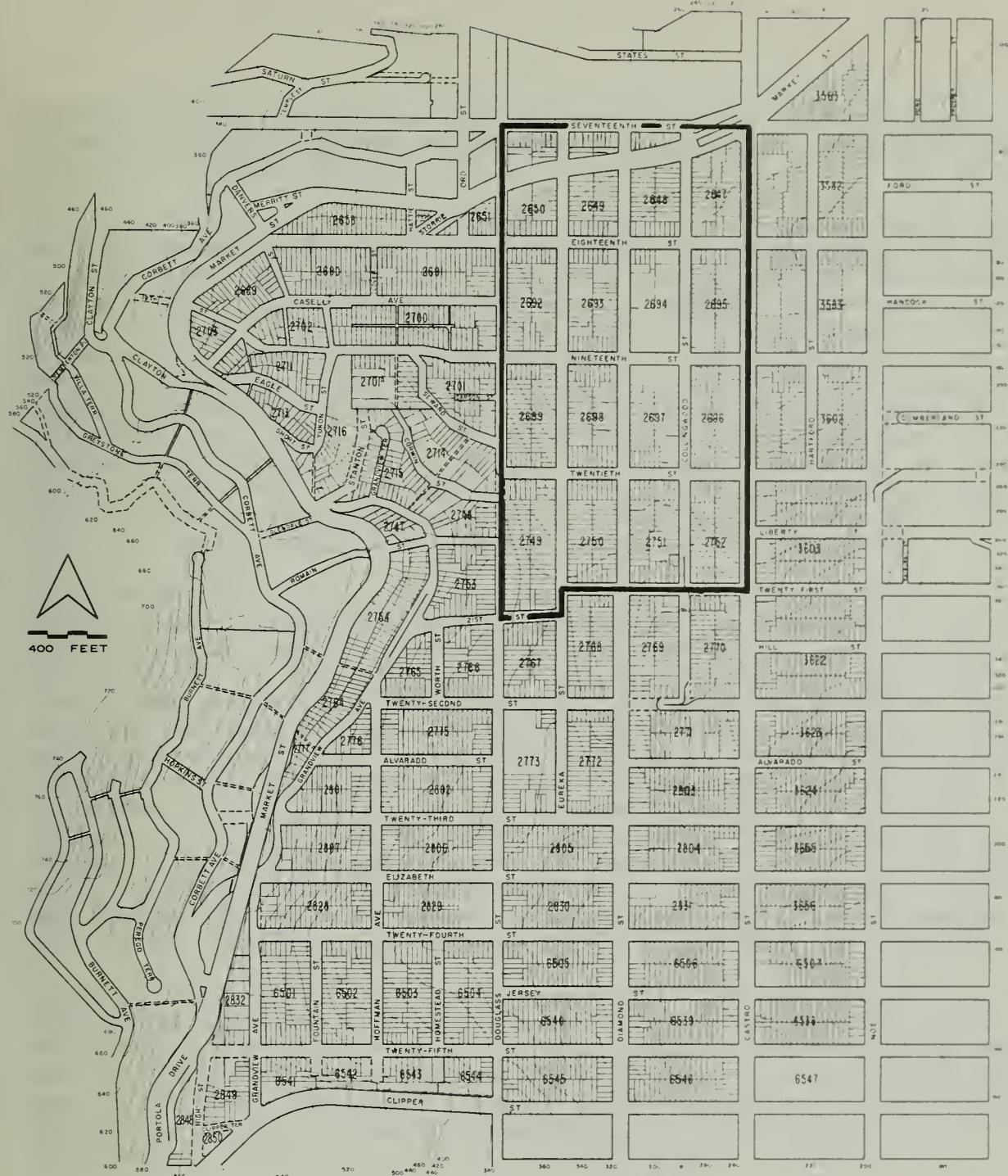
COMMUNITY AREA LAND USE STUDY

EUREKA VALLEY

COMMUNITY 7   PLANNING AREA 1

━━━━━ CENSUS TRACT 205
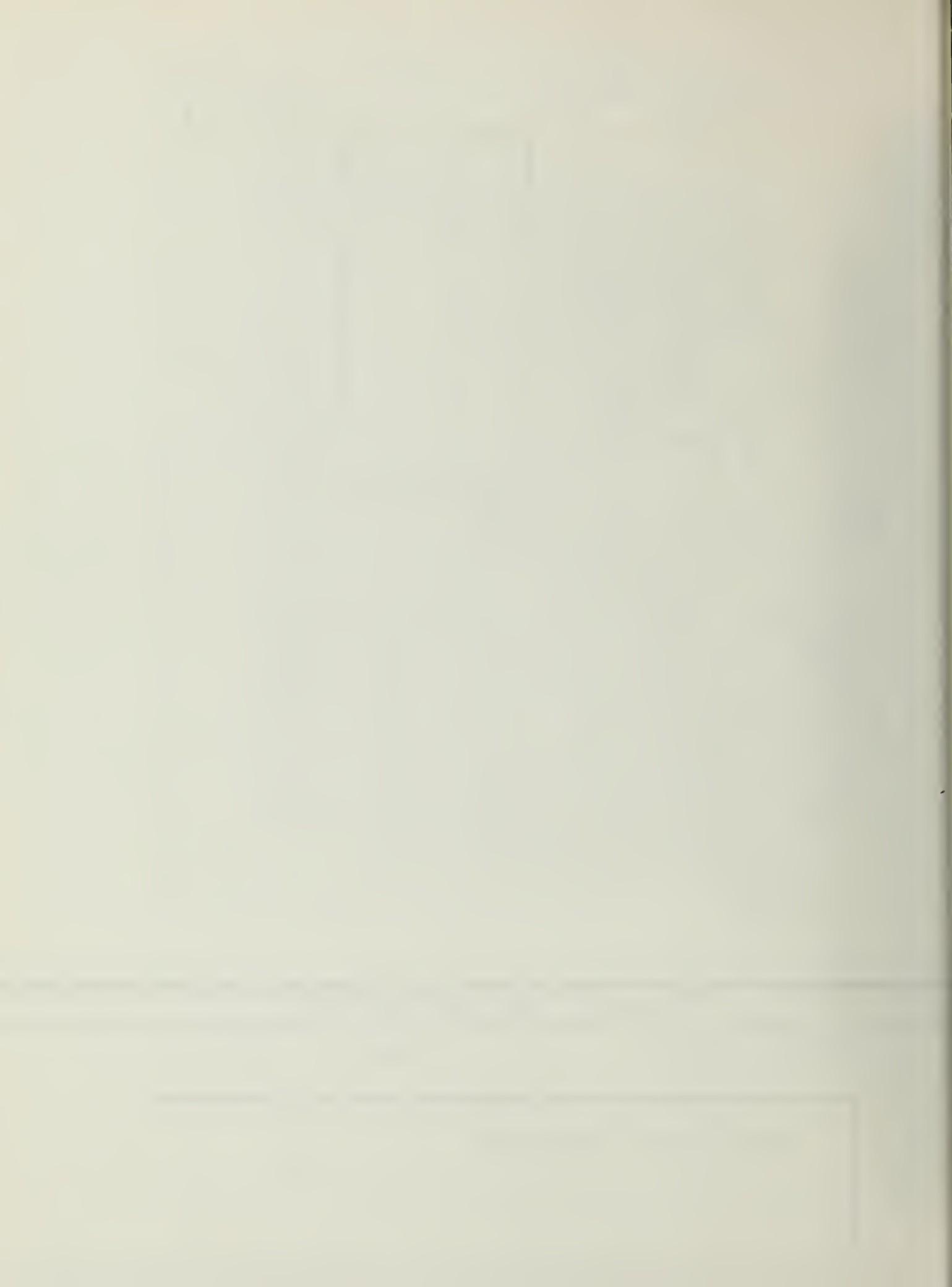
routine together with our geographic base file. (The article below on computer graphics provides an excellent example of this kind of application.)

How much time did this relatively simple summary require by hand? An estimated eighty man hours went into the preparation of the example. Of this time, probably less than a man day was spent on the graphic preparation, including the tables. The rest of the time was spent (about seventy-two hours) in tabulation of the information. This is a small Census Tract and the uses found are not many by comparison with other tracts throughout the city. Unless the information in the survey is compiled in a machine-readable form, the eighty hours required to complete this one example will probably be a minimum time expenditure for all similar compilations. With nearly one hundred-fifty tracts in the city, the time required to compile this report for each of them will amount to roughly 12,000 man hours or six man years.

Statistical tabulation may easily be accomplished by the computer often using inexpensive report generating routines which already have been written and tested. However, even if a program must be prepared for this application, it would probably require less than a man month to write and test. The routine would be used over and over to generate reports similar to the example, and the machine processing time would be in terms of minutes rather than days for each of the reports generated. Assume that as much as a quarter hour for each of the reports is required, then the production of one hundred fifty reports will amount to less than forty hours of processing time. If machine time costs $150 per hour the production of the reports will amount to about $6,000 for the entire city. Compare this with the cost associated with the manual tabulation at a rate of $2.75 per hour or $33,000!

Finally, the effort necessary to prepare this one report in this single format cannot be transferred to other desired outputs. Besides the incredible speed of the computer in processing information, it enjoys the virtue of flexibility. The same information may be tabulated in many different ways, and from it reports to satisfy a variety of users generated. This is simply not possible with manual tabulation.

In its 1971 budget, the Department of City Planning is seeking funds to complete the Land Use Survey by committing it to magnetic tape. The tape, as noted in the first newsletter, will be available to all who wish to use it.

Computer Graphics: An Example

Maps are often one of the best means of presenting information. Tables may conceal the importance of the figures in them except to the eye of the specialist; those same figures in mapped form may immediately reveal their meaning to the most unpracticed eye.

The attachment is from a report, <u>Computer Graphics</u>, prepared by the Southern California Regional Information System. (See Exhibit 3.) It is a demonstration of the ability to make maps using the standard output printer of the computer combined with the geographic base file and a routine called SYMAP, available to public agencies for $485. The basic data consisted of building permits filed with the Los Angeles City Building and Safety Department, for the ten year period, 1959-1968. In the report, only even years were tabulated and in the newsletter only four of the maps and tables have been reproduced in the interest of brevity. However, the use of several maps as a trend indicator for the construction activity in the period is clear, even with these few examples.

In order to produce these maps, manipulation of over 200,000 permits was necessary. According to the report,

> "The actual machine time production costs were well under ten dollars per map. The tabulation costs were also less than ten dollars per year and each year averaged approximately 40,000 permits.
>
> "Cost of geocoding was of course the most significant part of the total and averaged about two dollars per thousand permits (about $80.00 for the average year)."

<div align="right">

p. 8, <u>Computer Graphics</u>
SCRIS Report No. 1

</div>

It would simply have been impossible to tabulate the information by hand and produce the maps within the time and cost possible with the computer. This is an excellent example of the ability of the computer to transform raw data from an incomprehensible mass to one which readily shows the trends in building construction for a particular city in a particular period of time. The maps made by the output printer are ideal for policy recommendations and decision-making. Though they lack the elegance of the products of computer-linked plotting equipment, they are cheap to produce, rapid to make and easy to read. They may be applied to many different data items and can be produced for different geographic areas. This flexibility together with the other advantages of cost and time may make computer graphics one of the public administrator's most useful tools. Applications in public health and school administration, police and fire protection as well as building inspection and planning are readily made. The land use survey, mentioned above, could employ this technique, and census information could be mapped by its use.

1960

NEW RESIDENTIAL HOUSING UNITS *

LEGEND

Shading Symbol	Number of Units	Number of Census Tracts **
. . . .	None	210
+++++ +++++ +++++	1 to 25	323
ΘΘΘΘΘ ΘΘΘΘΘ ΘΘΘΘΘ	26 to 50	60
▪▪▪▪▪ ▪▪▪▪▪ ▪▪▪▪▪	51 and over	41

* - See text for reference
** - The total number of census tracts
   in each class interval

1960

NEW DWELLING UNITS
BY 1960 CENSUS TRACTS

VENTURA COUNTY

S.F.

BURBANK

BEVERLY
HILLS

SANTA
MONICA

CULVER
CITY

PACIFIC OCEAN

LONG BEACH

CITY

OF

LOS ANGELES

NORTH

10000
FEET

PREPARED BY THE COMPUTER GRAPHICS SECTION
SOUTHERN CALIFORNIA REGIONAL INFORMATION STUDY

SYMAP
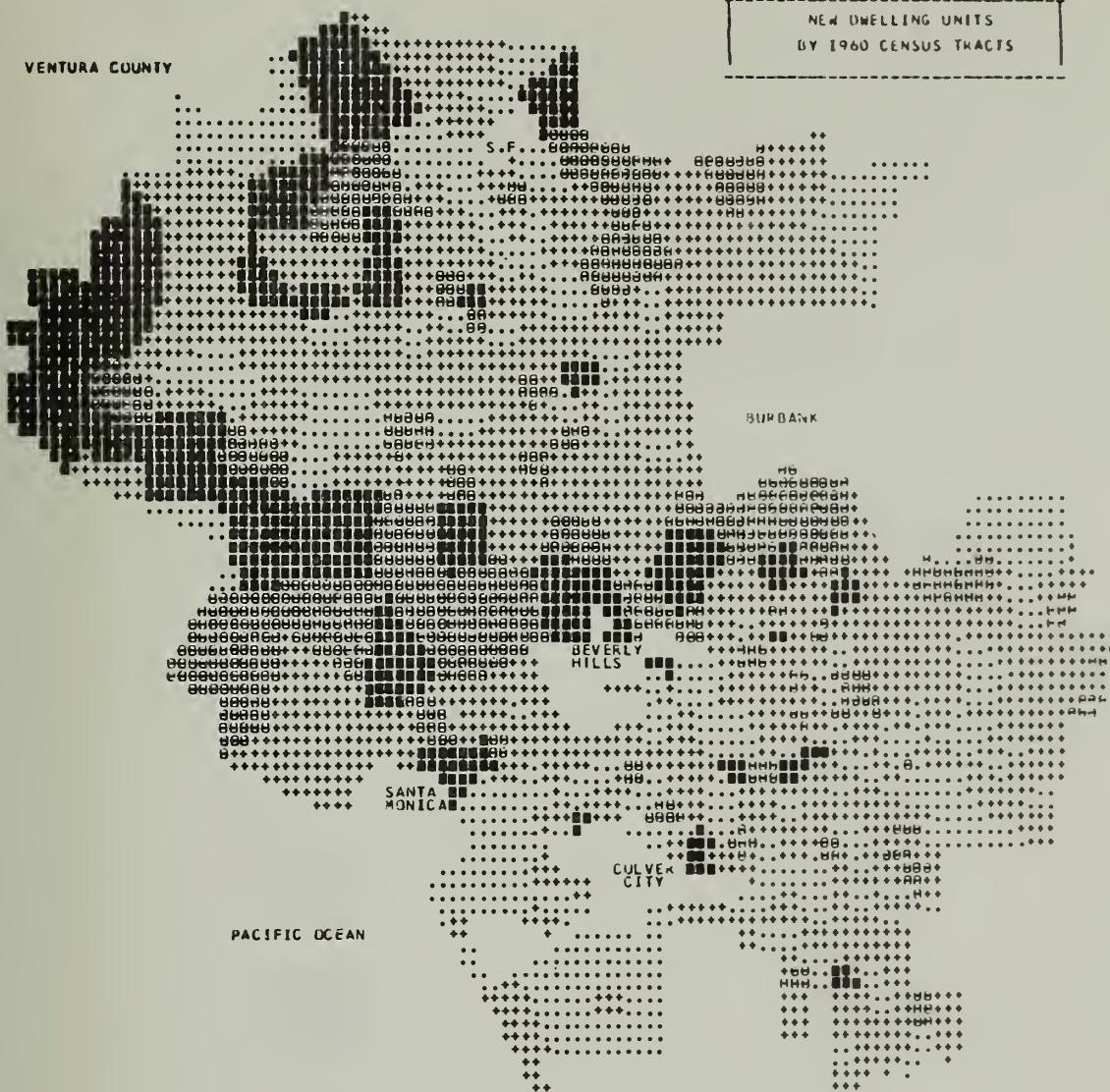
1964

NEW RESIDENTIAL HOUSING UNITS *

LEGEND

Shading Symbol	Number of Units	Number of Census Tracts **
. . . .	None	159
+++++ +++++ +++++	1 to 25	307
ӨӨӨӨӨ ӨӨӨӨӨ ӨӨӨӨӨ	26 to 50	104
▮▮▮▮▮▮ ▮▮▮▮▮▮ ▮▮▮▮▮▮	51 and over	64

* - See text for reference
** - The total number of census tracts
     in each class interval

1964

NEW DWELLING UNITS
BY 1960 CENSUS TRACTS

VENTURA COUNTY

S.F.

BURBANK

BEVERLY
HILLS

SANTA
MONICA

CULVER
CITY

PACIFIC OCEAN

CITY
OF
LOS ANGELES

NORTH

10000
FEET

LONG BEACH

PREPARED BY THE COMPUTER GRAPHICS SECTION
SOUTHERN CALIFORNIA REGIONAL INFORMATION STUDY

SYMAP

1968

NEW RESIDENTIAL HOUSING UNITS *

LEGEND

Shading Symbol	Number of Units	Number of Census Tracts **
. . . .	None	311
+++++ +++++ +++++	1 to 25	269
⊖⊖⊖⊖⊖ ⊖⊖⊖⊖⊖ ⊖⊖⊖⊖⊖	26 to 50	26
▰▰▰▰▰ ▰▰▰▰▰ ▰▰▰▰▰	51 and over	28

~~* - See text for reference~~
** - The total number of census tracts
       in each class interval

1968

NEW DWELLING UNITS
BY 1960 CENSUS TRACTS
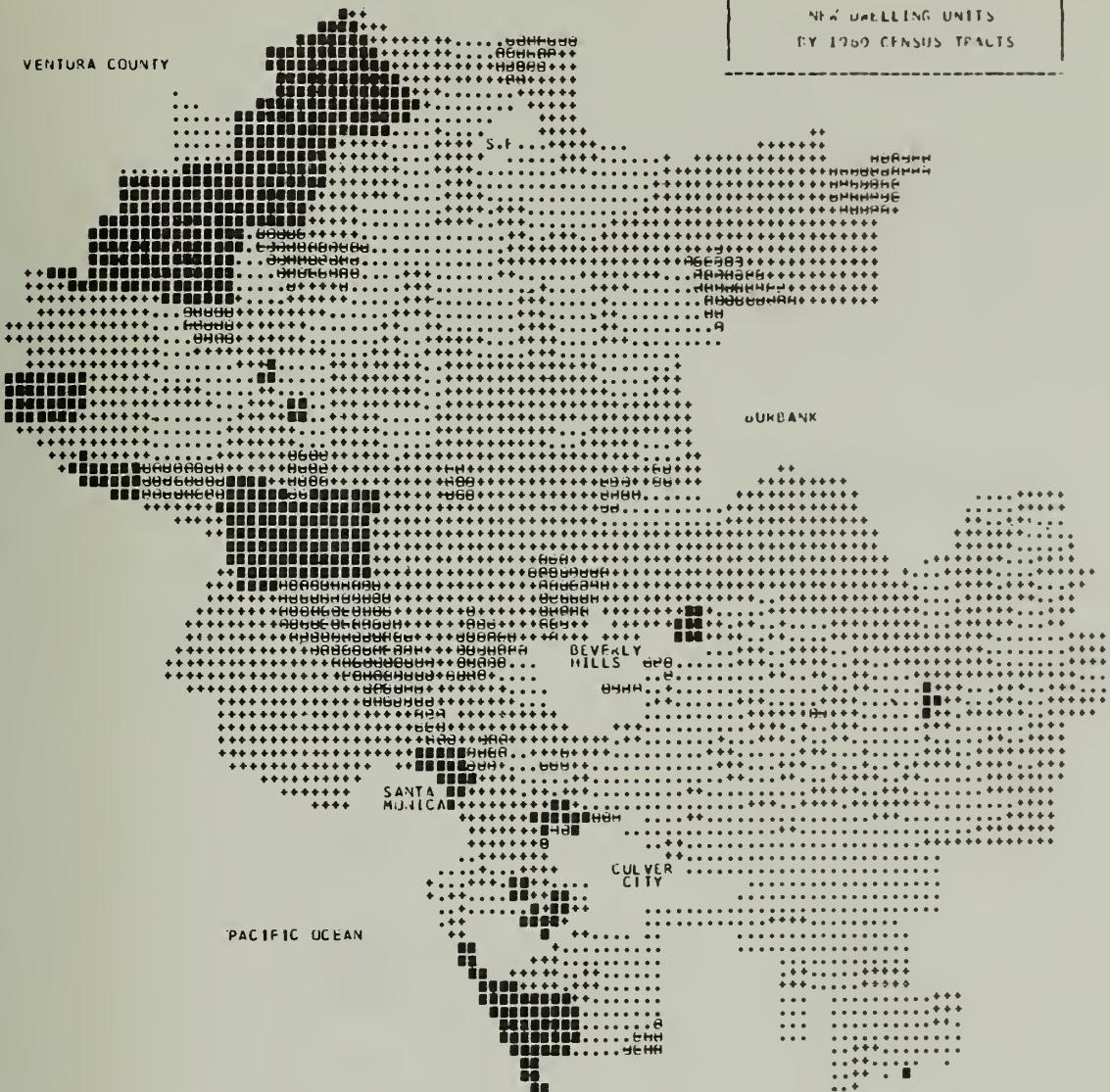
VENTURA COUNTY

S.F.

BURBANK

BEVERLY
HILLS

SANTA
MONICA

CULVER
CITY

PACIFIC OCEAN

CITY
OF
LOS ANGELES

NORTH

10000
FEET

LONG BEACH

PREPARED BY THE COMPUTER GRAPHICS SECTION
SOUTHERN CALIFORNIA REGIONAL INFORMATION STUDY

SYMAP
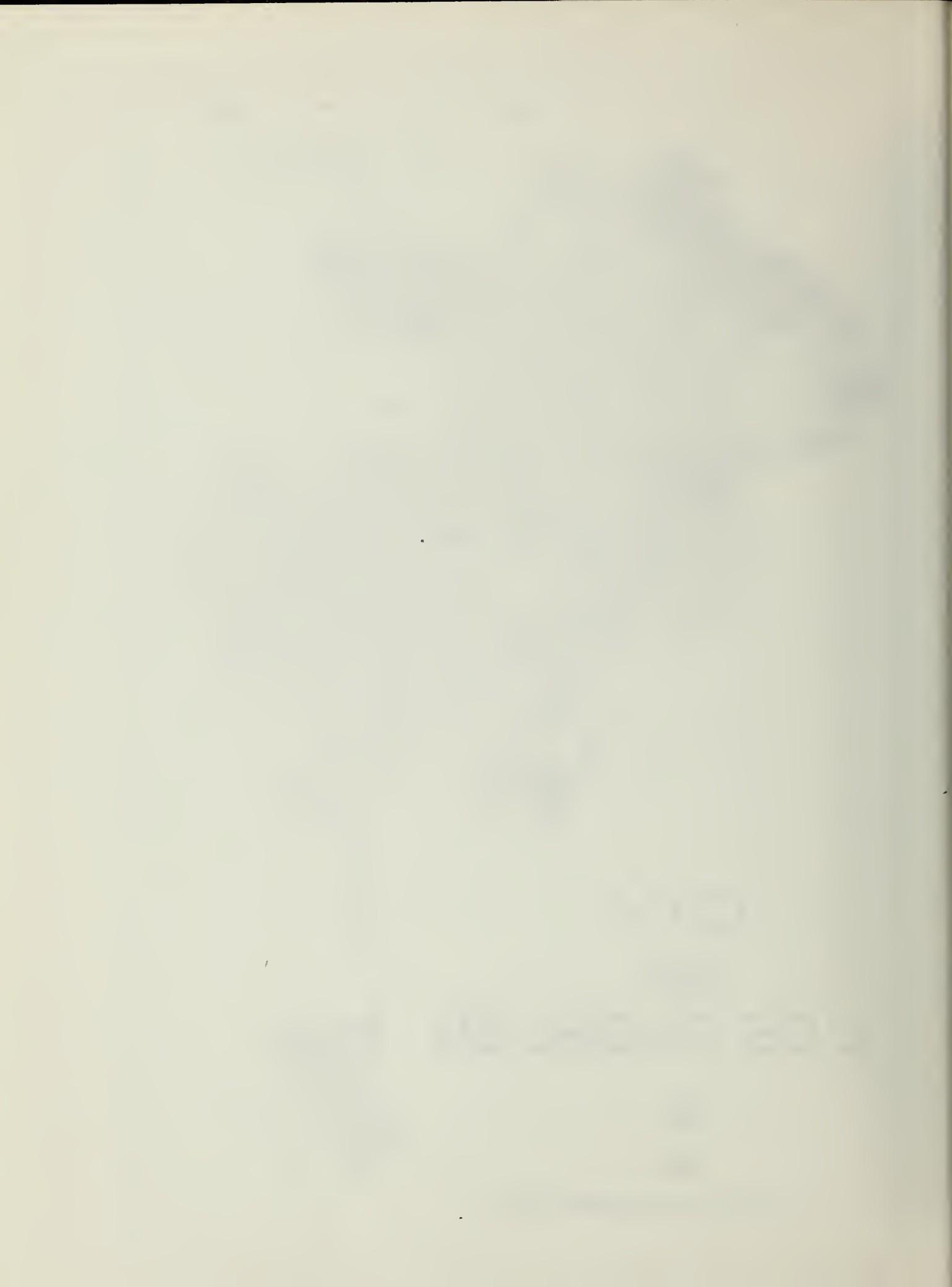
FIVE YEAR TOTAL 1960 TO 1968

NEW RESIDENTIAL HOUSING UNITS *

LEGEND

Shading Symbol	Number of Units	Number of Census Tracts **
. . . .	None	43
+++++ +++++ +++++	1 to 25	172
ΘΘΘΘΘ ΘΘΘΘΘ ΘΘΘΘΘ	26 to 50	133
▓▓▓▓▓ ▓▓▓▓▓ ▓▓▓▓▓	51 and over	286

~~* - See text for reference~~
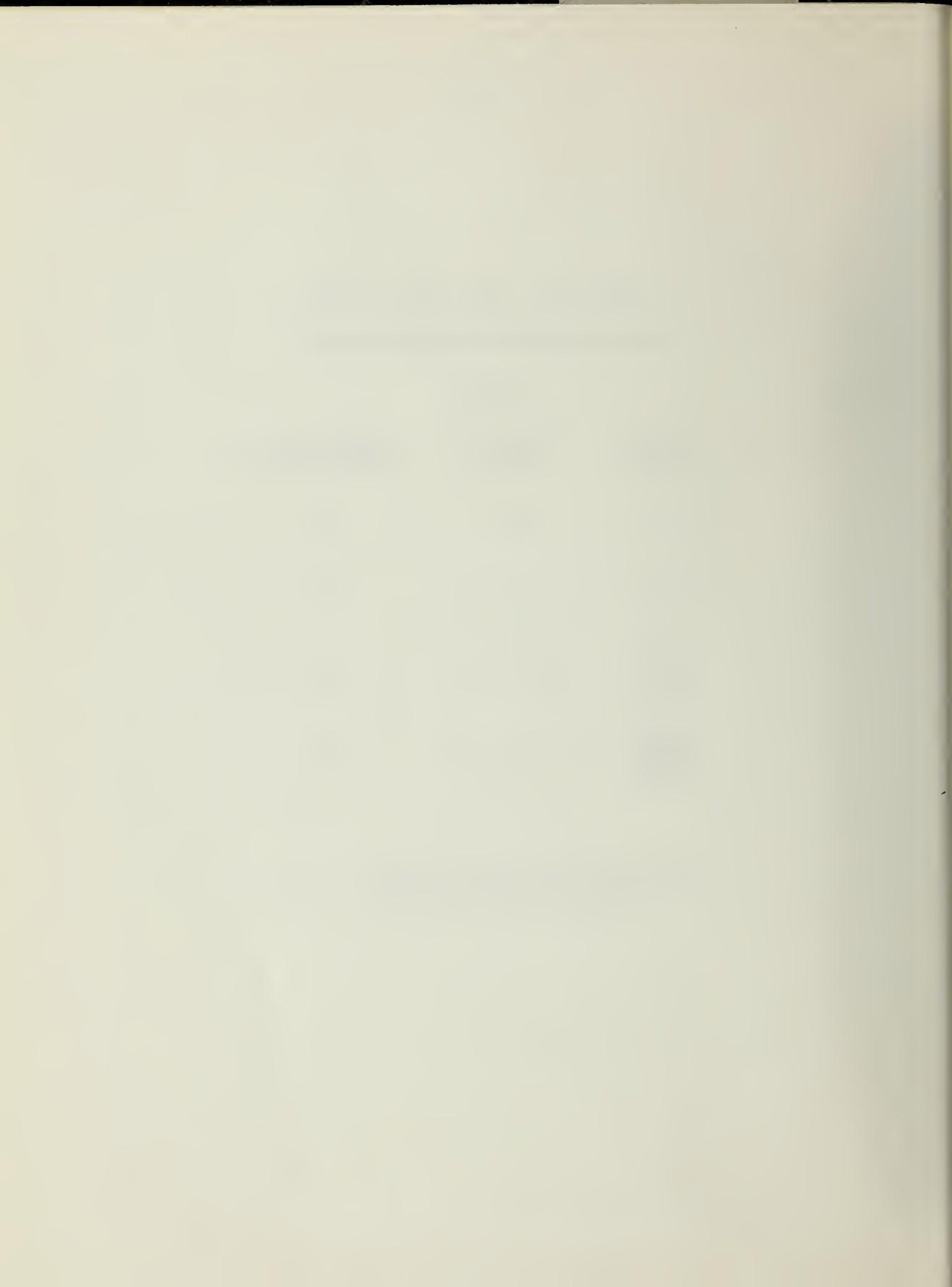
** - The total number of census tracts
    in each class interval

1960 - 1968

NEW DWELLING UNITS
BY 1960 CENSUS TRACTS

VENTURA COUNTY

S.F.

BURBANK

BEVERLY
HILLS

SANTA
MONICA

CULVER
CITY

PACIFIC OCEAN

CITY
OF
LOS ANGELES

NORTH

10000
FEET

PREPARED BY THE COMPUTER GRAPHICS SECTION
SOUTHERN CALIFORNIA REGIONAL INFORMATION STUDY

SYMAP
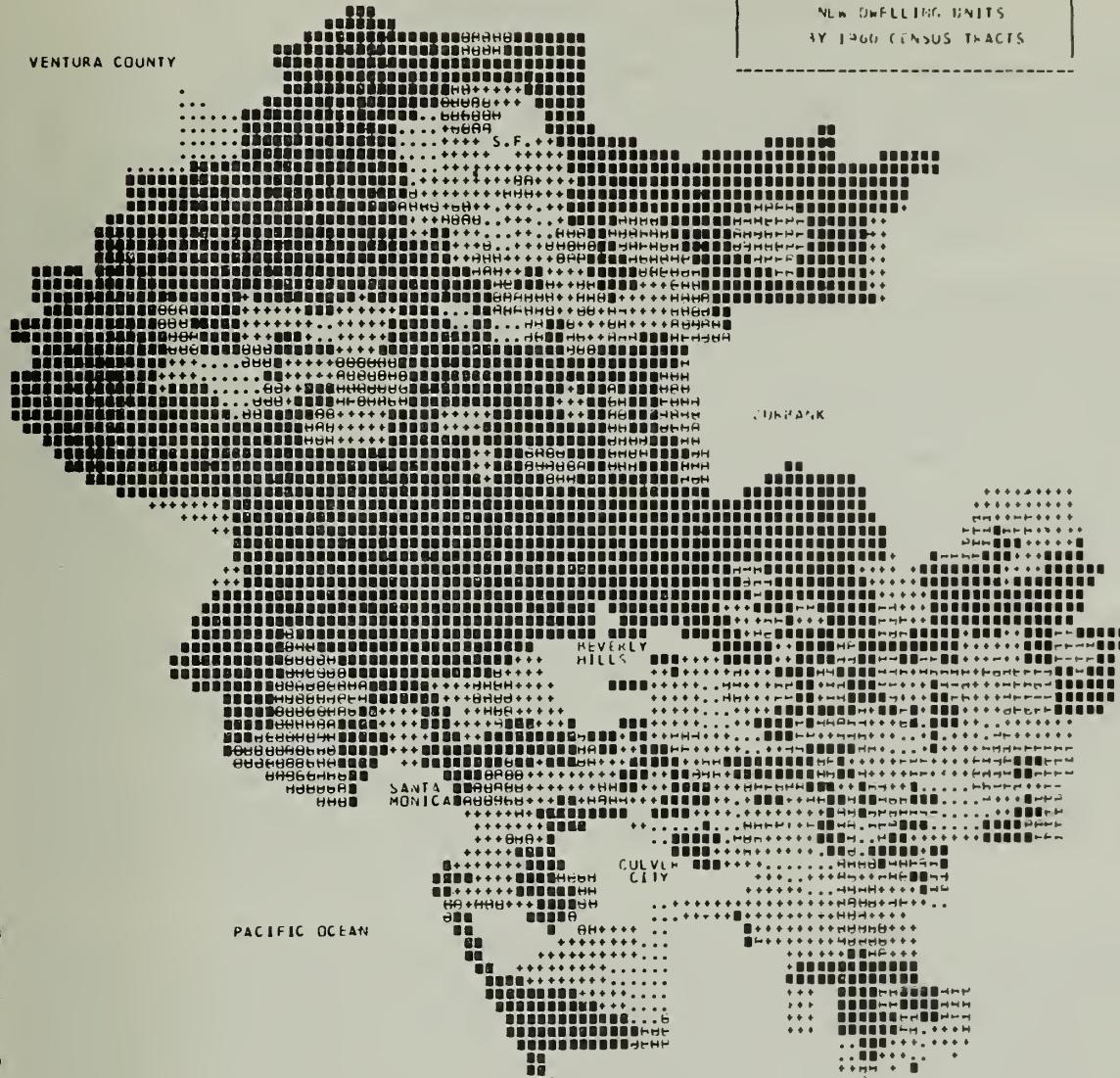
Documenting Information

A major obstacle to achieving the information system, according to the questionnaire respondents (see below), is agreement on the definition of data items. Indeed, agreement not only on the content of an item of information, but upon the method of collection, the means of maintenance and the responsibility for it is fundamental in the development of any information system.

The first step in the procedure of information documentation is to identify primary items of information. A primary item of information is one first generated by an agency in the course of its work. Thus, an application for a guilding permit is a primary item of information first generated by the Central Permit Bureau in the Department of Public Works. The Department of Public Works then becomes the source of that particular item of information. Another department may make use of the information contained in the application in a report. The report is itself an item of information, but it is a secondary item of information.

Governmental agencies are the most important sources of primary information, bar none. From the information generated daily by public departments depend the reports on the state of society from local to national level. Without the information, neither government nor the private sector would be able to function effectively. The importance of knowing what primary data is generated from what sources and by what means is therefore essential to the construction of the information system.

One of the main goals of the work we undertake will be the compilation of a handbook of primary information items. The handbook will serve as basic documentation to provide the group with the information items as defined, collected, and used by the source agencies. It will be a tool which may be used to achieve agreement on standard definitions, on responsibility for collection and maintenance, on equitable procedures for access and cost-sharing for information resources.

This was attempted during the Community Renewal Program, but the document produced was not satisfactory for our purposes. In a large measure this was due to the use of non-departmental consultant help to inventory the records. It is our belief that those who use the records daily are the ones best equipped to describe them. It is also important to understand that this stage of documentation is not evaluative.

Forms are being designed which will be used to describe the primary information resources. These forms will be distributed to each member of the working group. The completed forms will be returned to Pete Groat who will then reproduce them and incorporate them in a document to be circulated to all members of the group. This document will serve as the basis for discussions

leading to the mutually satisfactory standardization of primary information items. This will supplement the tables which you received earlier in the abridged version of the report, Achieving A Common Information System. It goes without saying that this very important step can only be taken with your complete coopera- tion. The benefits will be very large, both in the identification of primary resources and in the achievement of mutual understanding.

New Membership

Bureau of Environmental Health Services   Mr. Jack Coyne
Manpower Planning and Research   Miss Eunice Elton
Property Conservation, D.P.W.   Mr. Bernard Cummings
Redevelopment Agency   Mr. Walt Gaby

A number of the members of the working group have requested multiple copies of the newsletters and enclosures. We will try to supply the need though our issues are necessarily limited for budgetary reasons. It should be noted that ACCESS and the accom- panying material are intended primarily for those actively engaged in the development of the system. While a wider distribution of this material for informational purposes would be desirable, it is difficult, given the limited funding of this project to do that. When the project has reached a point at which we can report to the public on real achievements and the prospects for accomplishment, we hope to be able to produce a document for more widespread distribution.

The ACCESS #1 Questionnaire: Summary

While not all of the ACCESS questionnaires had been returned in time for the preparation of the second newsletter, the number (19) is sufficient to provide an idea of mutual concerns. The results are briefly summarized below. In item 1., the number preceding the slash indicates the total of respondents who checked the item. The number following is, of course, the total of all responses received. If you haven't returned your questionnaires, we urge you to do so. They are being used, as this summary indicates, to identify problems and opportunities.

1. Check the following goals you consider our system should achieve. Add to it any that you think should be included.

17/19 Rapid access to your own information

17/19 Accessibility of other Department's information

16/19 Retrievable record storage

15/19 Standardization of data items (definition, collection, quality control)

17/19 Elimination of duplicate record keeping

13/19 Reduction of collection, storage, retrieval and processing costs

17/19 Ability to collect, analyze, and report on data more effectively

16/19 Access to new data processing services

18/19 Ability to keep information files up to date

14/19 Opening new interdepartmental communication channels

2. What do you see as potential obstacles to the achievement of the system? If you see possible ways to overcome these, please add these as well.

The principal responses in order of frequency:

1. The costs of development and maintenance of the system.

2. Definition and standardization of information.

3. Interagency communication and cooperation.

3. What recommendations would you make on the proposed program of work to achieve the system? (We can discuss this when we meet.)

The essential response was that agencies contribute substantial staff support and be willing to meet to discuss policy.

4. What are the highest priorities you would set in the program to achieve the information system?

Responses to this question reflected in almost every case the particular situation and interests of the respondent's department. Taken as a whole, they covered just about every aspect of information system development.

- - - - -

Kindly complete the postcard and mail.

If you haven't returned the questionnaire accompanying ACCESS No. 1, please do so.

NEWSLETTER NO. 3   MAY 1971

Contents

1. The 1970 Census: Getting and Using It (2)

In March, 1970, the First Count Summary tape was processed by the Census Service Facility to produce a voluminous (1600 page, 40 pound) printout (STP 1-1) for San Francisco. The printout listed 409 items of data for approximately 600 enumeration districts and blockgroups in the city. The Department of City Planning, by ordering the initial copy at $360, made possible duplicate sets at $135 for several City agencies and other public organizations. The Department has also purchased the first count tape for use by the City and will place it with the Systems and Data Processing Division.

The experience of coordinating the orders, disseminating information on the material, and acting as principal liaison with the Census Service Facility indicates that formalization of procedures will benefit future operations. The need for coordination is emphasized when the volume of information obtainable from the next three summary tapes is compared with the first. The following table gives an idea of how much information is contained in each of the tapes to be acquired. The table lists the number of data items and number of areas in each summary tape count and compares volume with that produced by the first count. If each subsequent tape were "dumped" in the same manner as the first, the resulting volume of output (in pounds) is given in the final column (6).

1	2	3	4	5	6
				Ratio to	Pounds
Count No.	Data Items	No. Areas	2 x 3	1st Count	Output
1	409	600	245,000	1:1	40
2	3,600	150	540,000	2.2:1	88
3	250	7,000	1,750,000	7.1:1	284
4	13,000	150	1,950,000	7.9:1	316

This exercise is intended to appall. Anyone familiar with the difficulty which mastering the massive STP 1-1 printout from the first count presented can infer how much this will be compounded for counts two through four.

This fact has convinced the Department of City Planning that in the long run, the only feasible way to handle the information for City use is to purchase the tapes for processing in our own Systems and Data Processing division. There is now, at Census Service Facility, a firm order for the first four counts of the Census to be paid for by City Planning. The fifth and sixth counts, being the zip code and public use counts respectively, are not included in this first purchase order.

In the FY 1971-72 budget, a sum of $5,000 was asked for the processing of these tapes. Despite support for this item, it was denied, which leaves us in the paradoxical situation of having the tapes, but not the means to process them. Nor was any money included for the purchase of summary outputs from the Census Service Facility, the vendor for the first count STP 1-1 output. As noted in ACCESS 2, the information contained in the tapes exceeds that of the printed reports series. It is also available up to a year sooner. However, it does require money, time and experience to mine these tapes for the information.

We are strongly suggesting that all City Departments interested in their use collaborate on processing of the tapes. We recommend that coordination be established through the Department of City Planning, the Census Key Agency for San Francisco. Pete Groat, of the Department, has handled most of the negotiations with the Bureau of the Census, and it is recommended that those desiring to use the tapes contact him (X 4306) before submitting requests to Systems and Data Processing for processing. He will be pleased to discuss tape contents and provide other assistance if desired. We hope that requests for information may thus be efficiently coordinated, avoiding disappointment and needless duplication. In return we hope that users will make data generally available and would be willing to invest in the development of computer programs to process the tapes. A general workshop session may be advisable; in the meantime, if you are interested in using the tapes, contact Mr. Groat.

A final thought on the subject of budgets for data processing. You may wish to investigate the use of the "995" accounts to capture FY 1970-71 funds for use in FY 1971-72. By holding departmental funds over, if they have not been used, the seriously deficient funding for processing Census tapes in 1971-72 may be somewhat, though not entirely, alleviated. Be sure to do this in advance of the end of the fiscal year on June 30, however, preferably no later than June 15.

There is no doubt that a number of people, both in government and in the community, will wish to use Census data. It is virtually the only source of information available on the social and economic

characteristics of the population. It will be required for sub-
mission on a number of Federal grant applications which may mean
millions in dollars returned to the City through subventions. A
relatively small investment in data processing will enable the
City to reap not only a harvest of information but may well be
essential prerequisite for Federal funding of local projects.

2. The Geographic Base File

Progress towards the completion of a geographic base file enabling
computer oriented analysis and mapping of information has been
made since ACCESS 2 appeared. The preparation of the San Francisco
intersection node numbers for the Dual Input Map Encoding file was
completed by the consultant for the project and submitted to the
Bureau of the Census. At the present time, according to William
Fay, Chief of the Geography Division, the data has been keypunched
and now awaits editing. When the balance of the counties have been
coded, all will be edited at once. The tape generated, containing
node numbers, will then be available gratis and the information
added to the Address Coding Guide, permitting application of the
DIME system. The City will obtain a copy of this tape, when
available, free of charge. Funds permitting, the Bureau will then
digitize the nodes (by assigning each an x,y coordinate) based
upon the Bureau's metropolitan map series at 800 scale. The
digitized nodes, containing a longitude and latitude coordinate
and using the State Plane Coordinate system as the basic reference,
will permit distance measurements, accurate to within 30', of each
point. The accuracy is sufficient for most mapping and analytical
applications.

A secondary benefit of the DIME project has been yet another edit-
ing of the ACG for San Francisco. On the basis of comments by the
Bureau, it appears that the San Francisco file is in reasonably
good condition. The "add rate", the number of additions which had
to be made to the existing records for corrections or to bring the
records up to date, was ten percent for San Francisco, comparing
favorably with the national average of twenty-three percent, and
with other Bay Area counties rates of up to twenty-five percent.

Plans are being made to expand the Address Coding Guide file by
adding the Assessor's Block numbers and the 1960 Census Tract and
Blocks. This expansion, feasible within the existing record
length, will greatly enhance the usefulness of the file for users.

3. SYMAP Aboard

The SYMAP program (see ACCESS 2), a routine which enables the
computer to produce maps on the standard printer containing up to
six shadings, is now available for use by City agencies. The
program was purchased by the Systems and Data Processing Division
and its first application here has been made by the Division of
Sanitary Engineering, Department of Public Works. The application
consists of preparing maps showing the intensity and extent of

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----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----1----+----1----+----2----+----
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PACIFIC   SAN
OCEAN   3.00   FRANCISCO
                                                                                                 BAY

3.00

                                                                            0.00
                                                                            Fb

3.00   1.00

                                              1.00

                  2.00

                              2.00

            1.00   3.00

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                                                    Fb=FEDERAL BUILDING

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----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----1----+----1----+----2----+----
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= 0.0

RAINFALL ACCUMULATED FOR 3 MINUTES
ENDING ON DAY 71, HOUR 11, MINUTE 52.
SAN FRANCISCO UPR STORM ANALYSIS.

THIS MAP USES THE SF UPR 1971 GAUGE POSITIONS
GAUGES 13 AND 14 HAVE BEEN SET EQUAL TO GAUGE 11
GAUGE 21 HAS BEEN SET EQUAL TO GAUGE 21 WHEN 23 HAS MORE THAN
1 TIP IN THE TIME INTERVAL
MINUTES ON THE MAP REPRESENT TIPS 1.01 INCH EACH PER 3 MINUTE TIME

VALUE EXTREMES ARE   0.0   3.00

PACIFIC
OCEAN

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FRANCISCO
BAY

FB=FEDERAL BUILDING

MAP

E =   0.0
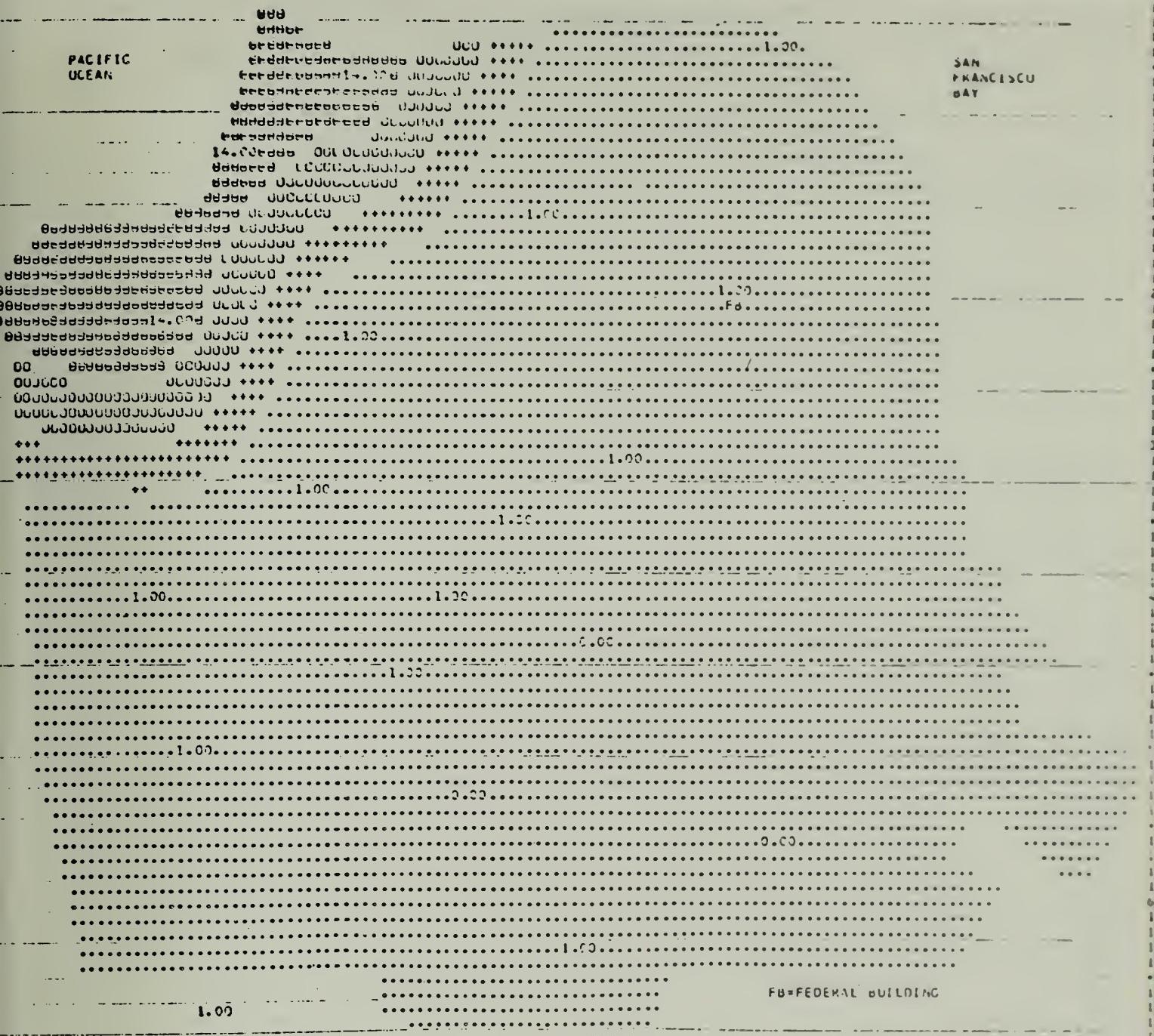
RAINFALL ACCUMULATED FOR   3 MINUTES

ENDING ON DAY 71, HOUR 11, MINUTE 55.

SAN FRANCISCO UPW STORM ANALYSIS.

THIS MAP USES THE SF UPW 1971 GAUGE POSITIONS
GAUGES 19 AND 19 HAVE BEEN SET EQUAL TO GAUGE 11
GAUGE 23 HAS BEEN SET EQUAL TO GAUGE 21 AND 23 HAS ALSO ...
E TIME INTERVAL
NUMBERS ON THE MAP REPRESENT TIPS 1.01 INCH EACH ...

A VALUE RETRIEVED ARE   0.0   14.00

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                                          .....       ++++++ JUOUCUCUU  dedododonHdonHdbos17.COo
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        OCEAN                .            ..........4.00.  +++++++ UUUCUULJUUUD  bcndddddocoodHondonddnddddddd          FRANCISCO
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                  ........             +++++++++++ CUUUUL UUUUUJLICdUCL.JUUUUUUUUUUJJUUUUUUUJUUUCCCUUUU
                4.CO..  .++++++++++++++++ UUUJNCLCUUL ULCUUUUL UUL UJUUUU JUUUUUJJUUUJJUUUUUUUUCLUU
                 ........       +++++++++++ UUUUJUUUCCULL JUUCUUUULCJJ ++++++++++          JJJJUUUUUUUUUU
              .......     +++++++++++++ UUUUUUUUUUJUUUUUUJUJJLULL +++++++++++++++++++          UUUUUUUUUU
         ...            +++++++++++++ UUCCUUUUUUUUUUUUUUJULLUUU  +++++      ..........      +++++++++++
       .............      ++++++++++ UUUUJCUCUUUCCUUUUUUJUJ.CUULUUUUU +++++          ...........
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    .....................      ++++++ CUCUUU dcdnddsoooos UHOCUUUUUUUL ++++ .............. J.UU      ++
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    +++++++++++++++++++++++++++++ CUUUUUUL ttbbddoe  UUUUU +++++++ .................
    +++++++++++++++++++++++++++ ULUUUJJUL tbbsodde  JUUCUU +++++++ ..............
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       UJJUUUUUUJUUUUUUUUUUJUUUUJUUUUUUUUUUJUUUU +++++ .............................
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               FO=FEDERAL BUILDING         ..
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        1.00          .............
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---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----1----+----1----+----2----+---
SYMAP

IME =    0.0


RAINFALL ACCUMULATED FOR   3 MINUTES

ENDING ON DAY 71, HOUR 12, MINUTE 7.

SAN FRANCISCO DP/ STORM ANALYSIS,


                              THIS MAP USES THE SF DP4 1971 GAUGE POSITIONS
                              GAUGES 13 AND 14 HAVE BEEN SET EQUAL TO GAUGE 11
                              GAUGE 23 HAS BEEN SET EQUAL TO GAUGE 21 WHEN 23 HAS MORE THAN
                              15 TIPS IN ONE TIME INTERVAL
                              ****
                              NUMBERS ON THE MAP REPRESENT TIPS 1.01 INCH EACH PER 3 MINUTE PLOTS

DATA VALUE EXTREMES ARE          0.0          17.00
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+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----1----+----1----+----2----
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PACIFIC
OCEAN

SAN
FRANCISCO
BAY

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1.00

3.00

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4.00

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4.00

0.00

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1.00

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FB=FEDERAL BUILDING

2.00

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+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8----+----9----+----1----+----1----+----2----
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MAP

IM =   0.0

RAINFALL ACCUMULATED FOR   3 MINUTES

ENDING ON DAY 71, HOUR 12, MINUTE 25.

SAN FRANCISCO DPW STORM ANALYSIS.

THIS MAP USES THE SF DPW 1971 GAUGE POSITIONS
GAUGES 13 AND 14 HAVE BEEN SET EQUAL TO GAUGE 11
GAUGE 23 HAS BEEN SET EQUAL TO GAUGE 21 WHEN 23 HAS MORE THAN
10 TIPS IN ONE TIME INTERVAL
+++++
NUMBERS ON THE MAP REPRESENT TIPS 1.01 EACH (.01 INCH)

VALUE EXTREMES ARE   0.0   16.00
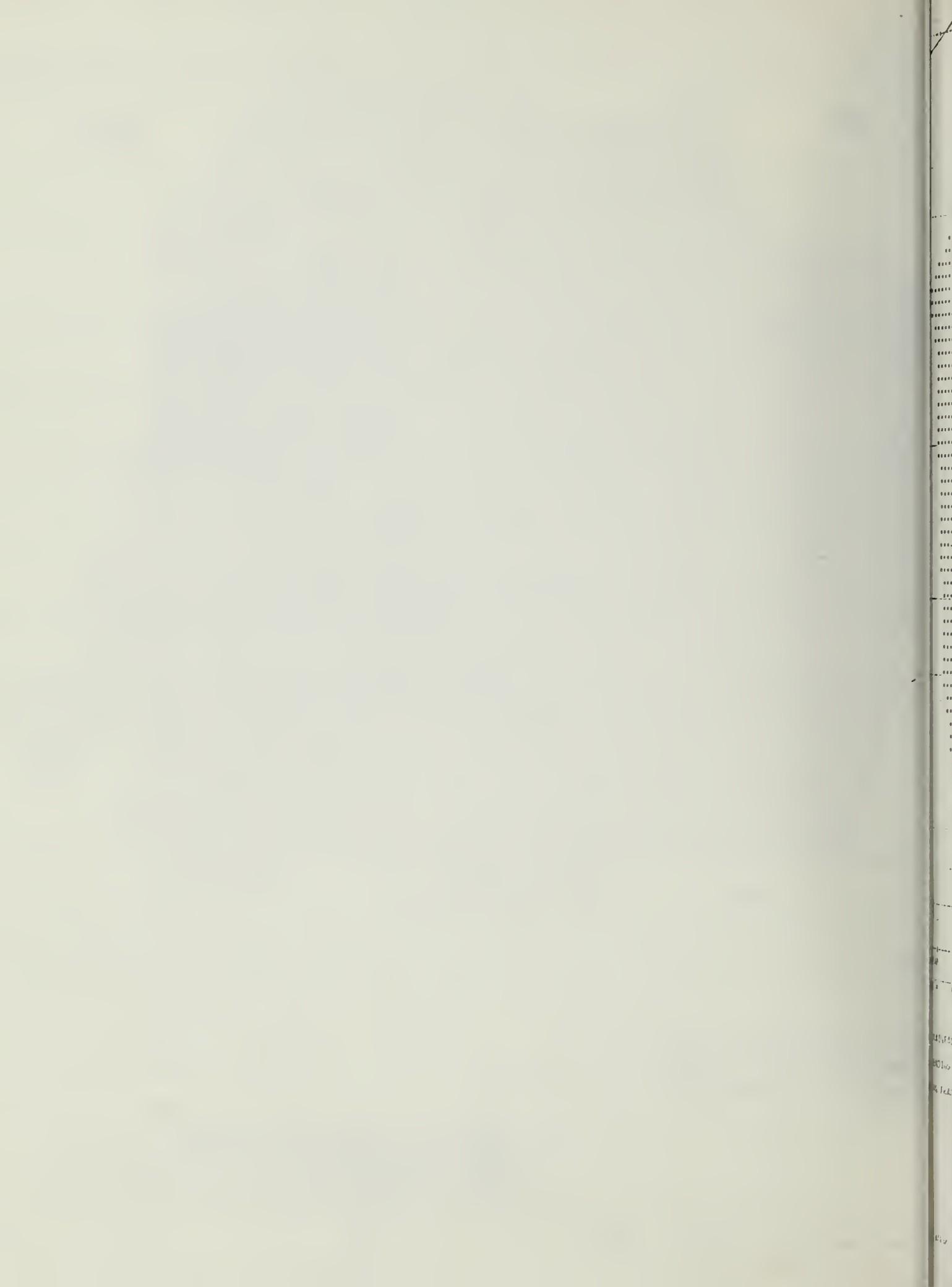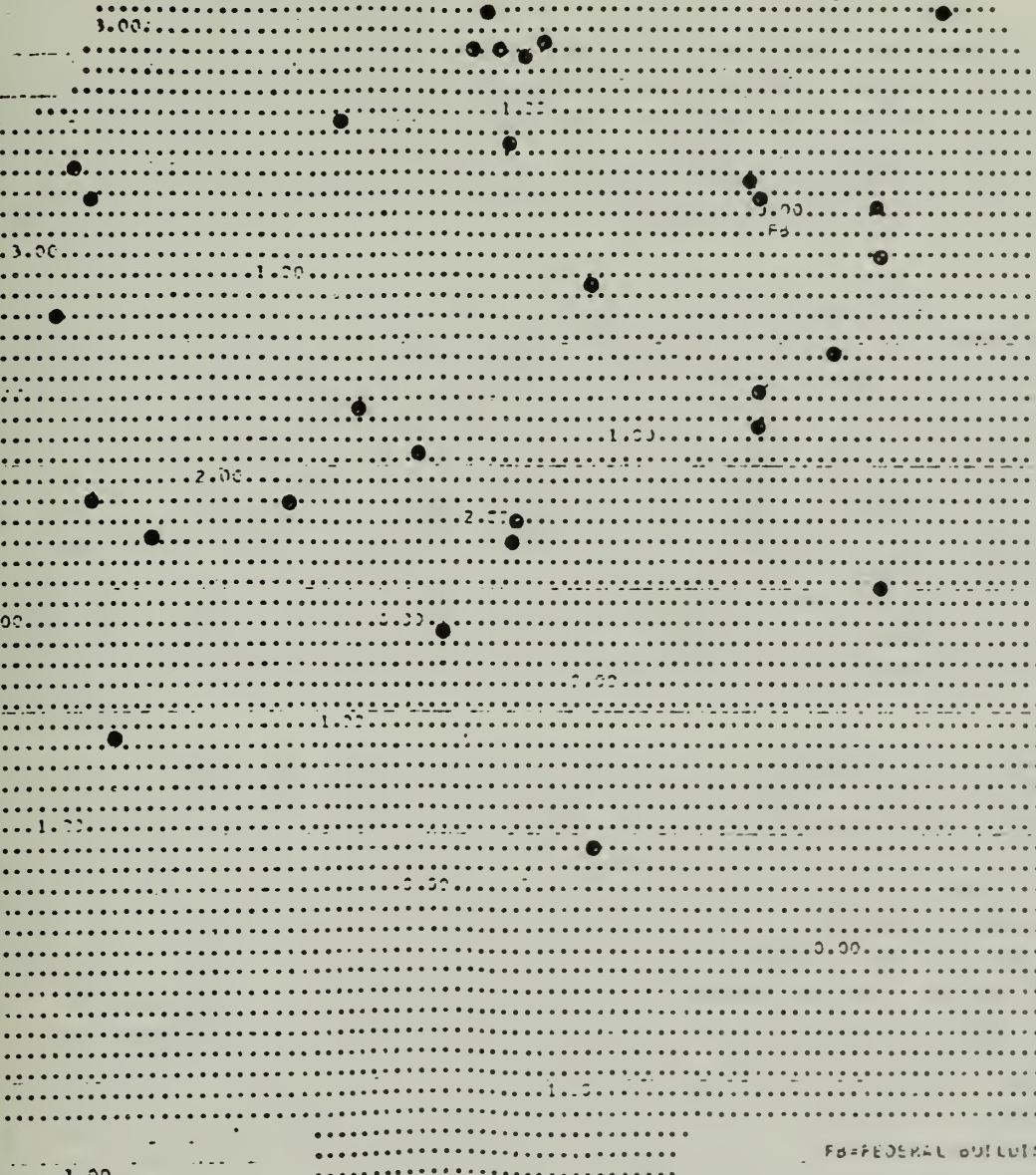
INCIDENCE OF FLOODING COMPLAINTS FOR STORM OF MARCH 12, 1971
(Overlain on SYMAP printout)
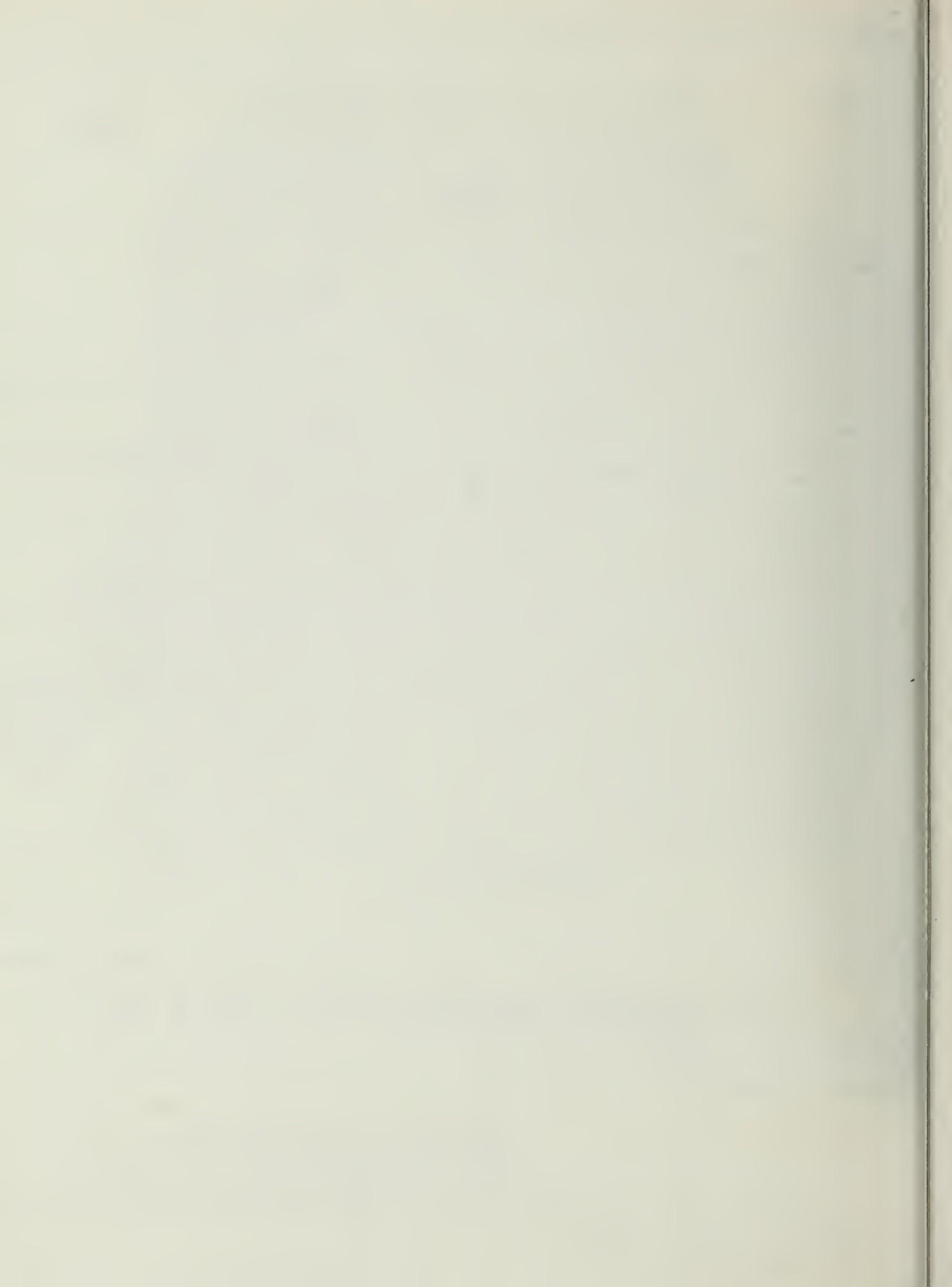
rainfall measured by rain gauges stationed throughout the city.
The purpose of the maps is to enable the engineers to determine
from the extent, direction and intensity of rainfall, the impact
on the city's drainage areas.

Four maps produced by the SYMAP program have been selected from
the full set of twelve which describe the storm. Each map displays
in graphic form the data recorded by the gauges during the storm
taken at three minute intervals. They permit a quick appreciation
of the course of the storm over the city and an evaluation, which
other data will supplement for more detailed numerical analysis,
of its impact.

The first map selected shows the state of the stations at 11:52 a.m.,
just before the advent of the most intense portion of the storm.
Three minutes later, at 11:55, the storm is already having a decided
impact on the northwestern portion of the city. Skipping to the
midpoint of the storm (full reproduction of the twelve maps is not
possible) at 12:07 p.m., one can see the extent of the city affected
by the storm, and gain an appreciation of its intensity and direc-
tion. The final map of the SYMAP set, at 12:25 p.m., shows the
severe portion of the storm in its final transit over San Francisco.
The fifth map was prepared by the Division of Sanitary Engineering
to record the complaints received on flooding and tend to
corroborate inferences which may be drawn from inspection of the
SYMAP series.

The value of SYMAP in this application is to enable the analyst to
gain a comprehensive, rapid picture of the whole event. The full
set of maps not only provide a sense of the geographical extent of
the storm and of its intensity at particular moments, but of its
direction and duration as well. To be able to grasp these dimen-
sions of the data allows later research to be carried out more
effectively. The variety of uses to which SYMAP may be put is
great: In ACCESS 2, building permit information was used for the
data to be mapped; rainfall measurements are data for the illustra-
tion used here; 1970 Census data has been used to produce maps of
various Census variables for the County of Los Angeles. With the
City's developing Geographic Base File (see 2 above), SYMAP can
provide a powerful and inexpensive means for analysts to appreciate
quickly the possible implications of masses of numerical data and
then employ more effectively their available research methods.

Technical information about SYMAP may be obtained from Mr. Ray
Sommer of Systems and Data Processing. Application for its use
should be made in writing to Mr. Henry Nanjo, Director, Systems
and Data Processing.

<u>4. The Land Use Survey</u>

Although a number of agencies and groups expressed considerable
interest in the Department of City Planning's Land Use Survey
(see ACCESS 1 & 2) and despite letters of support for the $20,000

needed to process this work for computer operations, it was
eliminated from the FY 1971-72 budget. The survey gives highly
descriptive classifications of land use on a parcel-by-parcel
basis throughout the city, together with other information fre-
quently desired. The survey, requiring two years to complete,
must be prepared for optical character recognition input before
it can be processed by the computer. In its present form, it
cannot be effectively used for analytic purposes and to preserve
the worksheets handling must be strictly limited.

This data, given the geographic base file, the SYMAP program, and
the 1970 Census, would provide an extensive information base for
planning and research needs of many departments. It is regrettable
that the resource cannot be used, and that its effective updating
will be impeded. If there are any concrete suggestions for putting
this data in a computer processing form, please get in touch with
Pete Groat (X 4306).

5. Changes in the Housing Inventory, 1970

Since 1967, the Department of City Planning has issued an annual
report, Changes in the Housing Inventory, which documents the
additions to and losses from housing based upon Department of
Public Works information. The report records changes by Census
tract for 1970, together with a new section describing the effects
of various public agencies upon the local housing stock. For the
first time, hotel rooms demolished have been recorded, in response
to numerous requests for the information. It is anticipated that
the 1971 report will include an evaluation of the housing inventory
based upon the findings of the 1970 Census. This report, of inter-
est to a number of ACCESS readers, will be presented to the
Commission on May 27, after which copies will be made available
as long as the supply lasts.

6. Additions to the Working Group

Arnold Baker of the Redevelopment Agency and Central Relocation
Services has been added to the ACCESS Working Group.

7. Distribution of ACCESS and further developments

Budget restrictions for FY 1971-72 will limit the distribution of
the newsletter to those immediately concerned with the development
of the City's Common Information System. Work on the information
system will not be abandoned, but the time that can be spent on the
project will be limited by Department priorities. We believe that,
with the development of the geographic base file, the acquisition
of the Census Summary tapes, and studies such as the Land Use
Inventory, valuable resources and methods are being developed which
will eventually permit transition to the system as first envisioned.
It will require time and patience on the part of the working group,
but it can be accomplished. Still to be done: the data
documentation phase, next on the agenda.
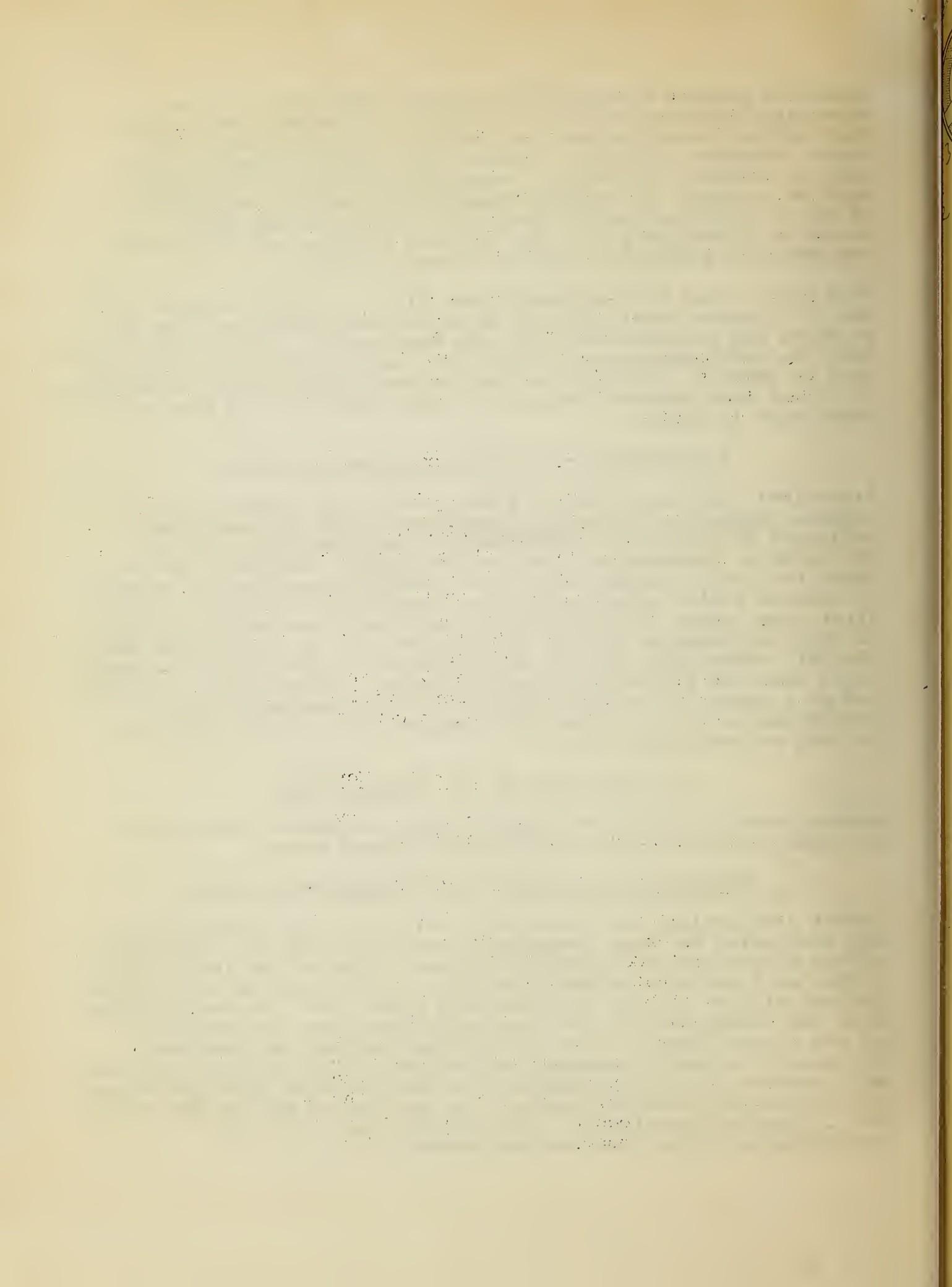
ACCESS : NEWSLETTER FOR COMMON INFORMATION

NEWSLETTER NO. 4   FEB 1 1972   JANUARY 1972

In the last ACCESS newsletter, it was noted that continuing work on the Common Information System depended upon the priorities assigned to other departmental projects. Since the third newsletter, issued in May 1971, a major share of time has been spent on matters related to the 1970 Census, more than had been anticipated would be necessary. At this time, it appears that more time will be spent on census work and that several other work items will claim the time that might have been spent on the development of the information system. This is regrettable, since there is a clear need for the coordination of information, but inevitable, given the resources for the task.

For the time being, therefore, this will be the last letter in the ACCESS series. The data documentation step, certainly the heart of building an effective information system, cannot be undertaken at present. It is an ambitious task and must be done with great care. It would be unwise to attempt it unless there was certainty that it could be completed, would be comprehensive, and of a consistently high quality.

However, despite the inability to pursue the project to a successful completion, we would like to note some things which have been accomplished and indicate others that may be independently acted upon. Even though this is far from the comprehensiveness necessary for systems work, it is quite apparent that any attempt at interdepartmental coordination of information and data processing will be welcome.

1. Census Summary Count Tapes 1-4 are being purchased as they become available by the Department of City Planning for general City use. The City's EDP unit has purchased two proprietary programs, DAULLIST 2 and 3, for processing the Second and Third Count Tapes. However, lack of funding in fiscal 1971-72 budget thus far prevents effective use of these materials, though many departments recognize their usefulness.

2. The Department of Public Health acquired a special tabulation program, TABLES AND EDITOR, which is versatile in application and permits a number of computations and table format variations.

3. The Department of Social Services has a set of the BIOMED statistical analysis programs. These programs permit statistical analysis of great sophistication to be performed on data by computers.

4. The Department of Public Works purchased the SYMAP version IV program which enables contour and proximal mapping by a standard computer printer. To this, VERSION V has been added which
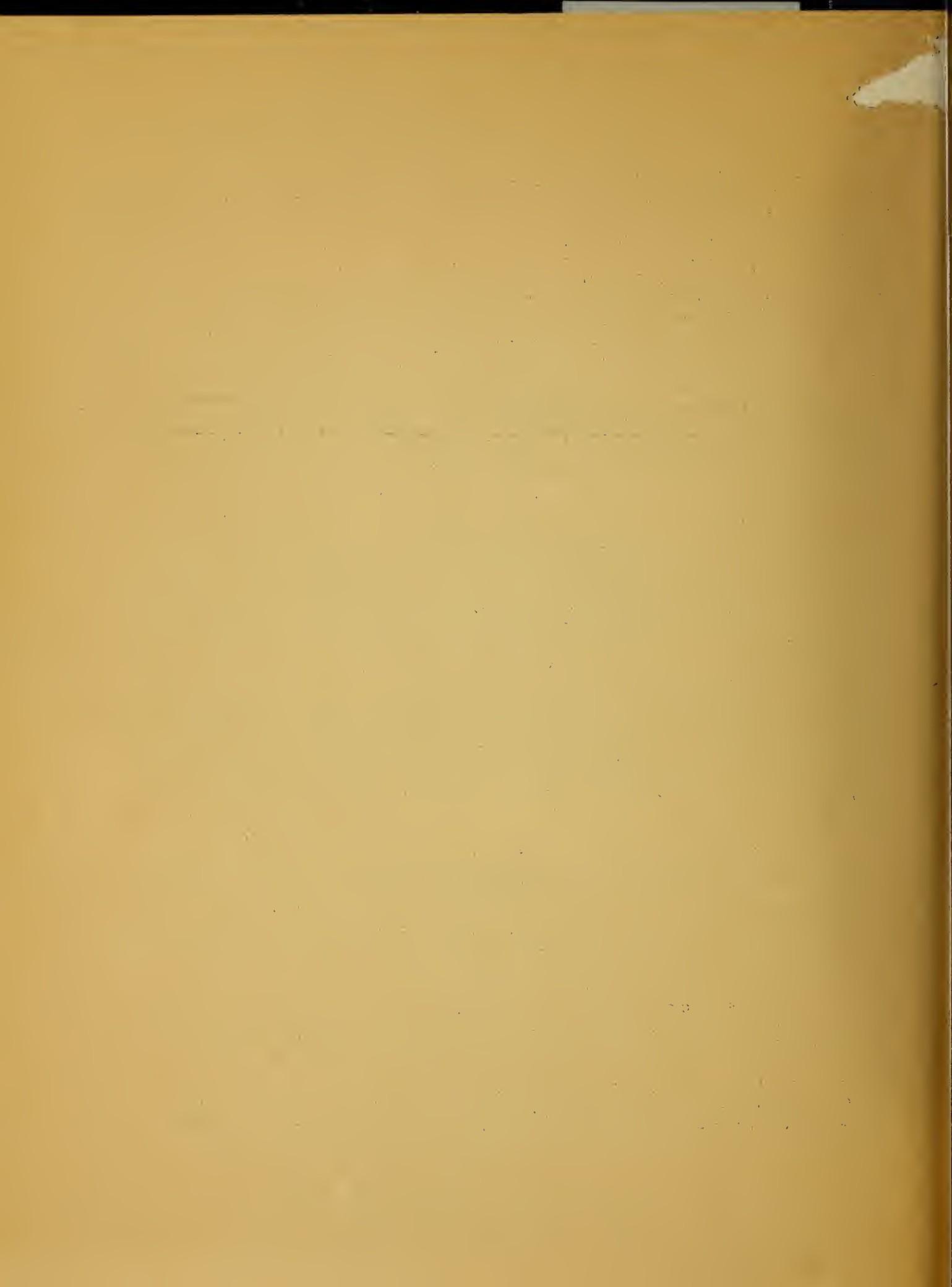
permits maps with fixed boundaries, such as census tracts, to be produced. The SYMAP products were described in the second ACCESS Newsletter. The Police Department is currently making an application of SYMAP V for analytical use.

5. The EDP unit has a master tape of the Address Coding Guide, (described in the ACCESS Newsletters) and ADMATCH OS program which, when the Guide is refined, can permit automatic matching of street address to census tract or other areas defined for the city.

6. Sufficient interest in the information of the 1970 Census was shown to lead to the formation of the Census Data Coordinating Committee by the Human Rights Commission. This body, comprised of a number of City departments, met during the fall of 1971 and grappled with the question of how to acquire and process census data without money, and how to achieve the optimum distribution of results. The consensus of the participants was that, especially for the Fourth Count, coordination of effort will not only be desirable, but essential given the volume of information, its importance, and the slender means available to make use of it.

7. The interest of several major departments in the city in combining resources for information processing has been encouraging. Unfortunately, it is not possible at this time to match the interest with the necessary resources. However, this recognition of a jointly desired goal may make future efforts in this direction easier to initiate. We believe that the development of the system should be from within City departments, using the knowledge and experience of City people and designed to realize the potential of the City's computing system and its staff. The system should not be one "overlaid" by consultants, but an indigenous development.

Tasks

This is by no means an exhaustive list of tasks that ought to be achieved, and we are sure that those who receive the Newsletter will have a number of their own to add to it. However, from our vantage point, these appear as of primary importance:

1. Continuing coordination, even if informal, of information and processing techniques between various departments. This may be the interim step towards a system development at a future time. Immediately obvious is the sharing of 1970 Census data and the in-house development of census data processing capability.

2. Refinement and rationalization of informational resources within each department. As an example, a revision of the demolition permit format proposed by the Bureau of Building Inspection,
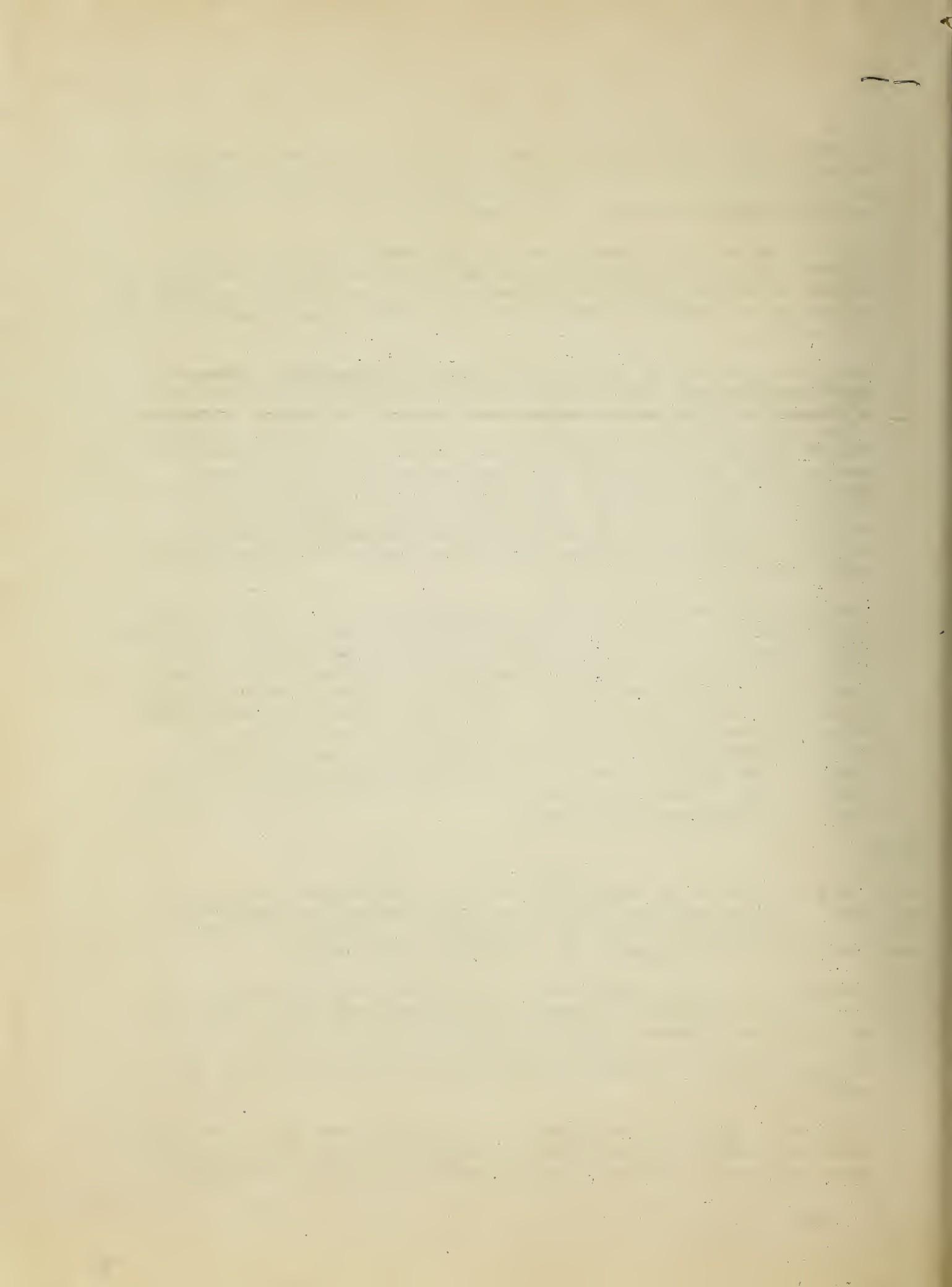
Department of Public Works, will enable more information to be collected and greater use made of it.

3. Mutual assistance between departments having and needing information which will, in the long run, be mutually beneficial. Thus, the Department of City Planning's land use survey, containing the computed acreage of each parcel in the city may well be of use to the County Assessor, who may, without covering the same ground, add it to his own file.

Thanks to all of you who participated in ACCESS, who filled out the questionnaires, and who shared their information. Because of your comments and your willingness to cooperate, the foundation of a system is laid whose development is only a matter of time.
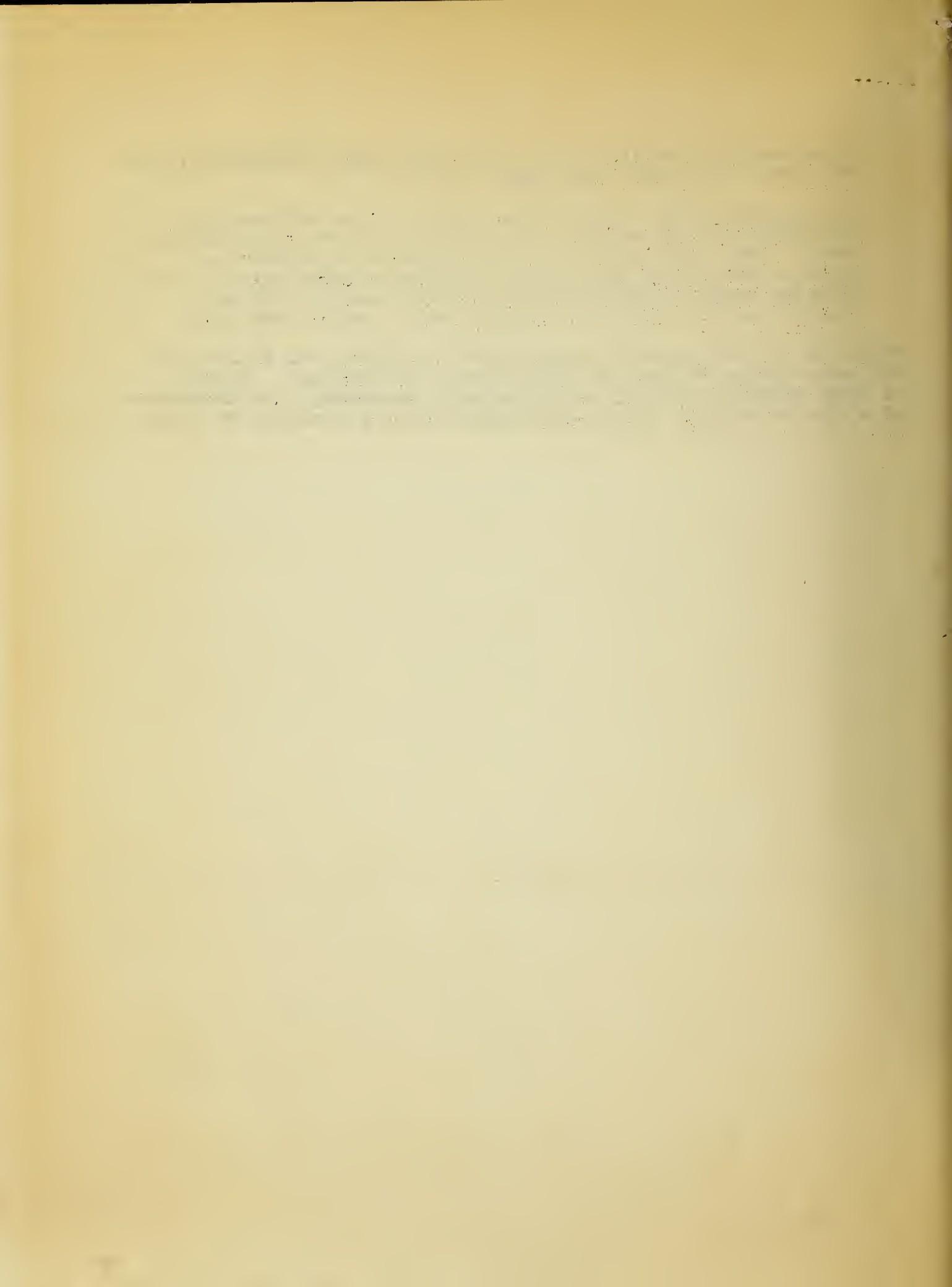
NEWSLETTER NO. 5   JULY, 1973

This newsletter is being published to announce two products of
interagency co-operation in the development of an information system
for the City. The products are a complete output, by Census tract,
of the Fourth Count 1970 Census Summary Tapes and the generation of a
magnetic tape containing the 1970 Land Use Survey prepared by the
Department of City Planning.

Fourth Count Census Summary Tapes

The information contained in population and housing files is now
available in print-out form at the Department of City Planning
(arranged by Planning District), the Science and Documents room of
the Public Library, and the Department of Public Health. Depending
on the binding arrangements, the information is contained in as
many as 20 volumes of printout, and contains over 300 tables con-
taining information not available in any of the published Census
reports for the City as a whole and for each of its 148 Census
Tracts.

Land Use Survey

In addition to a report which has tabulated land use by general
categories for each Census Tract of the City, there now exists a
set of two tape reels containing a parcel-by-parcel description
(in four-digit Standard Industrial Classification code) of the
functions occurring on the parcel, its acreage (to the nearest
ten thousandth), the current zoning, and the number of housing
units. This tape is available for use by City departments, at
their expense, and for members of the public, pending financial
arrangements for duplication of the master tapes. All requests
to release the file should be addressed to Allan B. Jacobs,
Director of Planning, 100 Larkin Street, San Francisco, CA. 94102.

The following description of the interagency effort is given to
underline the fact that even though we were not able to proceed
with the Common Information project as was first proposed, in less
ambitious ways the foundation continues to be laid.

In the case of the Census Summary Tapes, the Department of City
Planning bought the original set for San Francisco from the Census
Service Facility; and with the support of many Departments, notably
the Department of Public Health and the Human Rights Commission,
obtained a budget for their processing. Then Systems and Data
Processing purchased the special program tapes, necessary to
extract data and put it into easily understood tables, and made
their operation on City equipment possible. The preparation of
the Land Use Survey required the co-operation of the Assessor's
office in furnishing the secured roll master file which formed the
geographical basis of the Land Use Survey. Again, the active

involvement of Systems and Data Processing in the development of the routines necessary for tape generation and the subsequent tabulations were essential. Although many individuals contributed to this effort, the names of Jim Sorenson, Tom Turner, and Mrs. May Fong in Systems and Data Processing deserve special mention for their part in the technical support necessary to make both the Census and the Land Use systems operational.